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GARDENING IN FLORIDA,

A TREATISE

ON THE

VEGETABLES AND TROPICAL PRODUCTS

OF

FLORIDA.

BY

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INTRODUCTION TO SECOND EDITION.

The first Edition of " Gardening in Florida " being exhausted another is called for, and with it the fulfillment of the promise given at the outset: that if the " Manual " met with a reasonable amount of encouragement at the hands of the Public, it should be succeeded by a more elaborate and substantial work.

The reception accorded the " Manual " *was* highly satisfactory, and in token of his full appreciation thereof, the Author offers this volume as its pledged successor. Nominally, it is the Second Edition of "Gardening in Florida," but in reality, it is a new work—almost entirely so. It has been carefully revised—in most instances, altogether rewritten. Large additions have been made to the list of garden vegetables; and each article on vegetable culture, new or old, has been prepared with reference to the modifications in previous methods, which longer experience, and more extended and closer observation, made desirable.

Besides the cultivation of garden, and marketable vegetables—to which this book is primarily devoted—there is a feature well calculated to enhance its value—I refer to the insertion of short treatises on the most important Tropical fruits.

The supply of information relating to this new and attractive horticultural industry of Florida is so scant and difficult of access, as to invest with peculiar interest every hint or suggestion having a practical bearing upon this little known subject. Our collection of tropical fruits is quite meagre, and of those we have, the varieties, in very many instances, are considered by the informed, as of little account. Several new fruits, as is shown in these pages, may be successfully introduced from other countries and profitably cultivated; their climatic requirements not materially differing from exotics already established.

To the inexperienced—and especially to strangers, those unacquainted with our soil and climate, this book is respectfully commended. For, notwithstanding the diversity of opinion which prevails among gardeners, in common with every other class, the hints herein contained—founded as they generally are upon actual experiment, or close personal observation—will largely tend to inspire confidence in their first observations.

The accompanying analytical tables will be found very useful. From them the specific food, required by each plant, may be readily obtained. By furnishing these constituents in quantities judiciously varied, the intelligent gardener, can, after a few experiments, determine for himself, precisely the kind and quantity of manure needed to produce any desired crop. And the result will show a great saving in the cost of production, as well as more satisfactory harvest returns.

The enlargement of "Gardening in Florida," apparent in this Edition, together with the illustrations, binding, superior paper, etc., has very greatly increased the cost of publication. The additional expense, however, was indispensable to the production of a book of durable form, and easy comprehension. Yet the price per copy has been fixed at a sum much below that charged for any similar work in the United States.

The descriptions, modes of treatment—indeed everything pertaining to tropical fruits, and tropical vegetation generally, has, with few exceptions, been taken from standard works accessible to me, such as "Firminger's Gardening for India," "American Cyclopædia," "Lindley," "Loudon" and others.

Should this little volume, despite its numerous defects, shed even a single ray of encouragement upon the toil of that thrice welcome class of immigrants to our fair land, for whom it was specially prepared—Developers of Homes—it will contribute no little to the happiness of the Author.

INTRODUCTION TO FIRST EDITION.

Market Gardening in Florida is fast becoming a great industry. Its importance to the State is almost incalculable and should receive every reasonable encouragement. It shows how the difficulties of self-support may be overcome by the man of small means while he is endeavoring to provide a home for his family. By its aid orange groves may be secured and the hardy sons of toil look forward to a future period of independence and enjoyment, which they could scarcely hope otherwise to attain.

A few years ago, two or three bushels of early vegetables were shipped North from one of the eastern counties, as an experiment. The returns being satisfactory, a larger lot was sent the following season. Encouraged by these tests, shipments have increased from year to year, until now the number of crates annually produced amounts to hundreds of thousands; and yet the business is but in its infancy.

Market Gardening is attracting to our state a class of intelligent, industrious immigrants, who are rapidly converting the very wilderness into beautiful and valuable homesteads, the products of which are to add to our material wealth and prosperity.

New lines of railway, just completed and in process of construction, are bringing vast and fertile areas within convenient reach of the great highways of transportation to the North and West. Freights are reasonable; and the quick transit from even interior localities, added to the advantages of refrigerators, well ventilated cars and compartments furnished by railroad and steamboat companies, will soon place Florida above the fear of competition from Bermuda, and the West India and Bahama Islands, in supplying our great country with early and choice vegetables.

Chiefly for the purpose of offering a few timely hints to the new-comers into our State, who design embarking in vegetable and fruit culture, has this little Manual been prepared. It lays no claim to originality, but simply aims to present such varieties of products, and such systems of cultivation, as experience has shown to be best adapted to the soil and climate of Florida. Horticultural operations, when directed by intelligence and skill, are much the same the world over; hence the *modus operandi* in planting, cultivating, etc., as practiced by Northern and European gardeners, is, with some modifications, equally applicable here. We are under obligations to Mr. PETER HENDERSON, of New York, for valuable hints in treating certain vegetables, especially for the present labor-saving or "level" culture of Celery, as opposed to the tedious and troublesome ditch or trench method. We have also profited by the experience of Johnson, Miller, and Knight—names well known in the horticultural world.

Prominence is herein given to those vegetables which are deemed most profitable to grow for distant markets; at the same time brief directions will be found, sufficient to guide the inexperienced, in the cultivation of most all others which usually pertain to a kitchen garden.

Wood-cuts for illustrating vegetables, grounds, implements, etc., are omitted on the score of economy. They are useful, it is true, but would have added materially to the cost, and it was decided to dispense with them in this issue. At some future time, should this Little Bantling be favored with a warrantable degree of success, a more elaborate and complete work on the marketable fruits and vegetables of Florida will be published.

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PREPARATION OF THE SOIL.

The absolute necessity of providing ample feeding room for the tender rootlets of plants, as well as for the free admission of air and water, should be indellibly impressed upon the mind of every cultivator of the soil. The small quantity remaining after combustion, the ash, or residuum of the plant, comprises the mineral, or inorganic portion, and which, by the aid of water to assimilate, has been derived from the earth. The larger, organic part, escapes in a gaseous form, and goes off to form new combinations. A considerable amount of plant food comes from the atmosphere, hence the tendency of the roots to approach the surface, and even to crop out, in places where the ground has been suffered to become hard and compact. The preventive will always be found in deep ploughing or trenching.

Water is another element essential to the life and development of plants. It not only dissolves and prepares the food immediately at hand, but generously gives forth that which had been collected by absorption, and transported from distant storehouses. Besides the inexhaustible supplies of fertilizing material furnished by these elements, air and water, they render important assistance in the work of disintegration.

Another advantage from deep ploughing is, the roots of plants during a drouth, can strike down out of the reach of the scorching rays of the sun, and revel in beds made cool and moist by means of capillary attraction—that wonderful and useful apparatus of nature for raising water from depths beneath.

Again, deeply broken ground will absorb, and economize rain;

storing the excess below the roots, and thus prevent washing in places where the surface is uneven. In hilly sections, the land should be broken up into beds parallel to the horizon, known as *levelling*, which is in effect a kind of terracing; and which if properly done would greatly protect the soil and fertilizers from waste.

The work of breaking up the ground, it is scarcely necessary to say, must be done before planting. Indeed, by far the larger and heavier part of the labor in making a crop should be performed at the beginning; before the seed is deposited in the ground, and while there are no roots to be disturbed.

In small, family gardens, the work may be accomplished by cutting narrow trenches, two or more feet deep, with a spade, observing to place the top and subsoil on opposite sides; in refilling the trench, there should be a sufficient quantity of good manure to take the place of the subsoil, and be thoroughly incorporated with that from the surface.

Such a method as the above could not well be used in market gardens; it is entirely too tedious and expensive. In large areas horse power must be employed. First run a furrow with any good plow that will go down eight or ten inches, and into this furrow run a long narrow scooter as many more. This will give an average depth of fifteen to eighteen inches, and if the work has been faithfully executed, and the land plentifully fertilized, a good crop may be confidently expected, unless the necessary supply of water should be wanting.

The subsequent work, whether by horse or hand, whether the implement be cultivator, sweep, rake, or hoe—must be shallow; just deep enough to break the crust which usually forms at the surface—particularly after a shower of rain—so as to allow free access to the roots by air and water. Frequent stirring of the soil is more needed in dry than in seasonable weather.

Subsoiling is hardly required oftener than once in two or three years, except in the very stiff clay lands found in parts of middle Florida. On some tracts about Tallahassee, and possibly in a few other localities, it would doubtless pay to subsoil every year.

MANURES.

To be able to obtain the proper kind and quantity of fertilizers, in order to secure the very best results for a given crop, is of the utmost importance. If the once prevalent notion of ascertaining the deficiencies of certain elements of food by analyzing the plant, and a few samples here and there of the soil in which it was to grow, were practicable, the task would be an easy one. But a little reflection will show, that so far as soils are concerned, it is not. The weight of the soil on an acre of land down to the depth of eight inches, is estimated to be 1,500 tons, or three million pounds. And if this immense mass of matter could be thoroughly mixed and analyzed, the result would still fall short of absolute accuracy. The chemist might force from their prison houses, constituents which had successfully resisted the powers of nature to draw forth. Or he might with the most delicate implements fail to detect the presence of an element which nevertheless formed a component part of the plant, and as such, just as necessary to its growth and maturity as one contributing twenty-fold more material. For by an invariable law of plant life, no one constituent, however seemingly insignificant, can be dispensed with. In one of the Reports of the Chemist of the Agricultural Bureau it is stated, that an element was found in the beet root and also in the tobacco plant, of which not even a trace could be detected by the spectroscope in the soils whence those plants were taken. The application of one hundred pounds of pure Peruvian Guano on an acre of land, would visibly affect the growing crop; yet its presence would more than likely escape the most searching analysis. Supposing the chemist to be provided with a true average sample of the soil, he must possess wondrous skill and superior implements indeed, to eliminate and identify the one ounce of fertilizer, which has been mixed with a ton of soil—about the relative proportion of the two. With the analysis of the plant, which is at least proximately correct, the better plan is to note the effect of special fertilizers, and by changes both in quantity and kind, continue experimenting, until the deficiency is ascertained. Some knowledge of vegetable physiology and chemistry, would be of great help to the cultivator.

The elements of plant food of widest application—those entering into the composition of most plants, are Nitrogen, Ammonia, Phosphoric Acid, Lime and Potash. These with many others are found in stable or barnyard manure, which by universal consent heads the list. Stable manure is composed of Carbon, Hydrogen, Oxygen, Nitrogen, Carbonate and Phosphate of Lime, Carbonate and Sulphate of Soda, Muriate and Sulphate of Potash, Chloride of Sodium, Magnesia, Alumina, Silica, and

Oxide of Iron. The very limited supply of this valuable fertilizer, comprising all of the elements of plant nutriment, should lead to its being largely composted with woods soil, cotton seed, well-dried and pulverized muck, or some other material for the purpose of increasing the bulk, as well as of fixing the more volatile constituents which otherwise would escape faster than the plant could appropriate them.

Nitrogen is furnished to plants chiefly in the form of ammonia obtained from decaying animal matter, and other organic substances. Pure Peruvian Guano is a valuable nitrogenous fertilizer, and rich also in phosphates. For reasons above given, it too should be combined with good absorbents. Its long continued use by itself, has impressed some farmers with the idea that it is noxious to the soil, and will render it sterile. So it will, unless the elements of nutrition which it does not possess are supplied from some other source, as it is not a complete manure.

The same is true of lime, or any other specific fertilizer, as compared with stable manure, which contains everything a plant requires. Lime enters very sparingly into the composition of plants. Its action is more mechanical, hastening the decomposition of organic matter, and, by the aid of water, in preparing the food for ready absorption by the roots. It is also very useful in rendering stiff soils more friable. On lands destitute of vegetable matter, a free application of lime will be attended with positive injury. So too, if mixed with fresh stable or other ammoniacal manures, unless the whole mass is covered with charcoal or dry soil to catch and retain the gases liberated by the lime.

Potash, another valuable fertilizer, may be supplied when needed by wood ashes, the ash of the hull of cotton seed, that from the root, or more properly, the trunk of the saw palmetto, is very rich in potash. Or it may be obtained as an article of commerce in the crude state, as imported from the inexhaustable beds of Germany.

Phosphoric Acid is found in almost all cultivated plants. It is usually applied to the soil combined with lime in all kinds of bones, or in the fossilliferous beds of marine animals, such as have recently been discovered and developed in South Carolina. There are strong reasons for believing that similar beds will be brought to light in this State; thereby starting a new industry, and supplying at reasonable rates, the ever increasing demand of fruit and vegetable growers. When bones are used, they should be ground fine or coarse according to the growing time of the crop. For immediate effect as in the production of early vegetables, they should be reduced to an impalpable powder, while fruit trees would be more benefitted by the slower decomposition of bone meal or cracked bone. Supported by one or two crops a year of pea-vines turned under, if practicable, or simply decaying on the surface, if not; this compound fertilizer will be found one of the safest and best, either for pushing young fruit trees to maturity, or for stimulating and sustaining older ones, in the yield of heavy crops.

Formula for Dissolving Bones.

Bones to be dissolved should be ground, but where this cannot be done, break them up as fine as possible. Place them in a tub, and wet the mass well with water, then pour over it sulphuric acid as taken from the carboy, equal to one-third or one-half the weight of the bones. Stir briskly for thirty minutes or so, and set away for two or three days. If at the end of that time all the bones are not dissolved, mix a little more acid with double its weight of water, and pour slowly again over the bones. When dissolved it becomes a soft paste, and has to be dried with charcoal, or wood ashes, before it can be handled and applied in the usual way to bed or field. The composting with charcoal gives it the appearance of a coarse granulated powder.

It may be used in a liquid form, by adding water equal to thirty times the *bulk* of the paste, before mixing with charcoal.

About three bushels of the phosphate is thought to be sufficient to use on an acre.

A carboy of sulphuric acid weighing one hundred and sixty pounds, and costing but a few dollars, will dissolve from 350 to 500 pounds of bones depending upon their quality, and the degree of comminution effected.

Bones may also be dissolved without sulphuric acid. Pack in alternate layers with hard wood ashes, in a barrel, using water freely in packing, and constantly afterwards. The mixture should never be allowed to get dry. This method will require several months.

Gypsum or land plaster, when it can be cheaply obtained, may be very profitably used by the producer. Composed of sulphur and lime, it may be applied as a direct fertilizing agent to certain crops, or to collect valuable elements of plant food from the atmosphere and other sources, and give them out as required.

Cotton seed is highly esteemed, and deservedly so, as a fertilizer. Composted with stable manure its value is, of course, much enhanced. The cake, or cotton seed meal may be profitably applied combined with Gypsum, in the proportion of three of the former to one of the latter.

IRRIGATION.

The value of water as a fertilizer was well understood by the early Oriental Nations.

We learn from sacred history of its use in garden culture many centuries prior to the Christian Era. The Celestials claim to have employed irrigation before the flood. From Egypt, where its existence is probably coeval with agriculture, its use soon extended to neighboring tribes. Besides the magnificent aqueducts of Imperial Rome, costly works for irrigating purposes have been constructed in other parts of the world. At the present, large sums of money are annually devoted to this object in India, Italy and other European countries, and in many parts of the United States. Notably in California and Colorado. The reported result in every case has been highly satisfactory.

Water acts in a two-fold capacity. It is Nature's great solvent, charged with the office of dissolving, and preparing for immediate use, plant food wherever found, as well as to convey it from one place to another. By its well known property of expansion, in passing from the fluid to the solid state, it assists in the operation of reducing, or disintegrating huge masses of fertilizing matter, which it afterwards takes up in solution and carries off.

The advantages derived from a proper use of water may be named as follows:

First. The large increase in the yield, ranging from fifty per cent. to several hundred.

Second. The decided improvement in the quality of the product.

Third. The quicker growth, and as a consequence, earlier maturity.

Fourth. The compartive certainty of the harvest.

And lastly, it is found destructive, says the Government Entomologist, to insect life, whereupon he recommends windmills in places not possessing streams, or other natural facilities. If it be urged that irrigation is only desirable in warm countries, and in those where rainfall is seldom known, it may be said in reply, that 500 per cent. increase yield has been obtained by it in Maine. And in the State of New York a prominent agriculturalist declared that a system of irrigation was the most profitable investment a cultivator could make in a climate subject to such periods of drouth.

There is no State of the Union in which irrigation would pay better than Florida. And while from its generally level surface, only a small part can furnish streams, or heads, as in more hilly or rolling countries, yet by means of wind-mills there is no reason why every cultivated acre should not enjoy the incalculable benefits which irrigation confers. Water is abundant and easily reached. If not convenient to lake, river or brook, exhaustless supplies can nevertheless be obtained within a few feet of the surface. And as for the motive power, it would be difficult to find a place where the wind can be so safely and so effectually pressed into service as in this favored land. The furious gales, and terrible cyclones, dealing devastation and death in their resistless course, are known to us only through the tales of horror, and cries of distress, which reach us from our suffering fellow-creatures in other States. No such demon of destruction has ever visited our shores. Our winds are so gentle, so uniform, and so constant "from early morn to dewy eve," and from evening till morning again, as to justify the use of the non-patented wind-mill; but to guard against a possible sudden puff or squall, it might be advisable to use the automatic gear-adjuster. The tank, or tanks, should be conveniently located, and have sufficient elevation above the ground to give a good headway. Hose, troughs, or pipes, will of course be required to conduct the water where it is wanted.

A farmer in California used more than 2¼ miles (12,000 feet) of piping to convey the water from a single tank fourteen feet high, over his grounds. In proof of the heavy expense judicious irrigation will bear, the same cultivator could afford to pay $15 to $20 per day just for the fuel (coal) consumed by the engine employed to do the pumping.

It may be confidently affirmed that no one who has given artificial irrigation a fair trial, would willingly return to the precarious and unreliable rainfall system, even were there no other advantage than the reasonable certainty of the *reaping* being proportioned to the *sowing*. An increase of fifty per cent. —the very lowest yield of irrigation known—would make quite a difference in the revenue of the fruit and vegetable grower. What would be thought of the average—100 or 200 per cent? If to this be added a corresponding quickened maturity, and an improvement in quality, thereby enhancing the market value of the product, the wonder will be that this powerful co-worker should have been so long neglected. Since the water of wells, streams, etc., is more or less charged with elements of fertility, the saving in the cost of manures alone would soon offset the expense of a windmill outfit.

In the culture of fruit of all kinds, and especially of the strawberry, irrigation will prove equally advantageous. Some years ago an interesting experiment was made with early peaches during a severe drought, and the result showed a difference of *two weeks* in favor of irrigation, in the ripening of the same variety.

Applied to the orange, there can be no question of obtaining more and better fruit, while the growth of the trees will be greatly accelerated.

In the culture of those which delight in a moist soil, such as the banana, guava and others, very decided effects in its favor, will become manifest from a free use of water.

Artesian Wells.

In connection with the subject of irrigation, a few remarks relating to this method of procuring water will not be amiss. Where not too expensive, nothing could be better. The name, Artesian, is derived from the Latin word *Artesium* for Artois, a Province in France, where they probably originated. A well of this kind in Artois has been flowing since early in the Twelfth Century, furnishing an abundant supply of water. They are used in almost all parts of the world. In the great African Desert, Sahara, quite a number are now in successful operation

—thereby literally converting the desert into a garden. The average water discharge from seventy-five of these wells a few years ago, was estimated to be 8,000 gallons each per hour, and their average depth 200 feet. In our own country they are increasing in popular favor, and their number multiplying every year. There are upwards of 200 in Iroquois county, Illinois, within a radius of twenty miles, and with an average depth of only seventy feet, the daily discharge is said to aggregate the enormous quantity of 53,400,000 gallons. The flow from them which rises several feet above the surface, varies from 20 to 120 gallons per minute.

Wherever water can be as cheaply obtained as in the instances above mentioned, private individuals might well afford to irrigate their market gardens and orchards by this method. And the experiments in the level districts of this State, encourage the hope that Artesian wells may, in the near future, be extensively employed in field and garden. A well at Daytona, 138 feet deep, "throws a jet of water seven feet in the air, and will rise in a three-inch pipe fifteen feet. The flow is estimated at 18,000 gallons per hour."

GARDEN VEGETABLES.

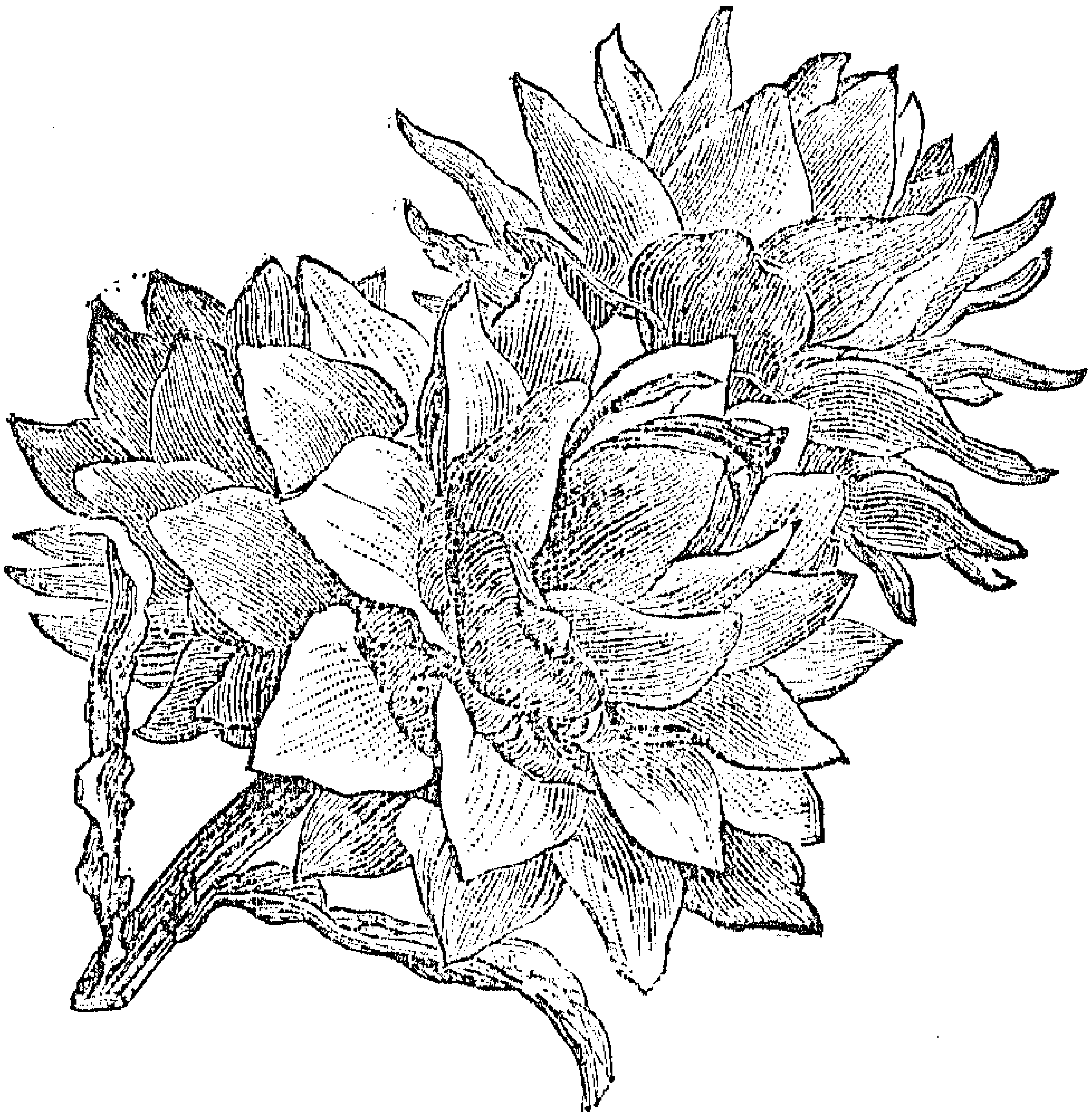
The subjoined list of vegetables embraces most of those usually cultivated in the truck patch for market, or in the family garden for home consumption, viz:

ARTICHOKE (Burr)—*Cynara Scolymus.*
ARTICHOKE (Jerusalem)—*Helianthus tuberosus.*
ASPARAGUS—*Asparagus Officinalis.*
BEAN (Dwarf or bush and Pole)—*Phaseolus.*
BEET—*Beta vulgaris.*
BORECOLE—*Brassica Oleracea fimbriata.*
BROCCOLI—*Brassica Oleracea botrytis.*
BRUSSEL SPROUTS—*Brassica Oleracea var.*
CABBAGE—*Brassica Oleracea.*
CARROT—*Daucus Carota.*
CASSAVA *vs.* TAPIOCA.
CAULIFLOWER—*Brassica Oleracea botrytis.*
CRESS (Garden)—*Lepidium Sativum.*
CELERY—*Apium graveolens.*
CORN—*Zea Mays.*
CUCUMBER—*Cucumis Sativus.*
EGG PLANT—*Solanum Melongena.*
ENDIVE—*Chicorium Endivia.*
GARLIC—*Allium Sativum.*
HORSE RADISH—*Cochlearia, or Nasturtium Armoracia.*
KOHL RABI—*Brassica Oleracea, var: caulo-rapa.*
LEEK—*Allium Porrum.*

LETTUCE—*Lactuca Sativa.*
MELON (Musk)—*Cantaloupe, Cucumis melo.*
MELON (Water)—*Citrullus vulgaris.*
MUSHROOM—*Agaricus Campestris.*
MUSTARD—*Sinapis.*
OKRA—*Hibiscus Esculentus.*
ONION—*Allium Cepa.*
PEA—*Pisum Sativum.*
PARSNIP—*Pastinacea Sativa.*
PARSLEY—*Petroselinum Sativum.*
POTATO (Irish)—*Solanum tuberosum.*
POTATO (Sweet)—*Convolvulus batatas.*
RADISH—*Raphanus Sativus.*
RHUBARB—*Rheum.*
SALSIFY (or Vegetable Oyster)—*Tragopogon porrifolius.*
SHALOT—*Allium Ascolonicum.*
SPINACH—*Spinacia, Oleracea.*
SQUASH—*Cucurbita.*
TANYAH—*Calocasia, esculenta.*
TOMATO—*Lycopersicum Solanum.*
TURNIP—*Brassica rapa.*
YAM (Chinese)—*Dioscorea batatas.*

ARTICHOKE.

Cynara Scolymus.



Notwithstanding the Artichoke claims for its home a region of country (South of Europe) whose climate is not unlike ours, I doubt there being half a dozen gardens in the State wherein it is cultivated. The explanation for which neglect lies probably in the vast number of vegetables within our reach, and which are far more highly esteemed.

In appearance the plant resembles a huge Scotch thistle, and without the usual condiments, about as palatable. Fortunately there is as much diversity of taste as there are objects for its exercise, and surely a land with so many ardent lovers of the fruit aptly called sour sop, should be at no loss for admirers of artichoke.

Although propagated both by seed and suckers, or shoots from the old plant, the former method is generally preferred, on account of its yielding, as claimed, hardier and more durable plants.

The analysis shows a large per cent. each of phosphoric acid and potash, and next of lime. To supply which, use ashes and bone meal, or superphosphates as special fertilizers. Fresh barnyard manure is particularly hurtful to this vegetable.

ANALYSIS.

Potassa	24.04
Soda	5.52
Lime	9.56
Magnesia	4.14
Sulphuric Acid	5.18
Silicic Acid	7.02
Phosphoric Acid	36.83
Phosphate of Iron	4.74
Chloride of Sodium	3.57
	100.00

After well fertilizing and thoroughly breaking and pulverizing the ground, lay off the rows for a seed bed about a foot apart, and sow the seed the latter part of January or first of February. If a large number of plants is desired, leave a walk every four feet. When the plants are six inches high, thin out to the distance of ten or twelve inches. In this seed or nursery bed they remain until fall—receiving meanwhile all needed attention in the way of work and watering. During the winter transplant to the permanent bed in rows four feet by three. The soil should be exceedingly rich and moist. Salt and forest leaves will tend to promote moisture, and prove valuable additions to the manure heap.

In propagating by suckers, begin quite early in the spring to remove the shoots from the old plant. Select those from six to ten inches high, sound but not woody. Remove the brown, hard part next to the old stem. If that is tender and crisp in cutting the plant is good, but if tough and stringy it is worthless. It is advisable in preparing them for planting, to remove the large outside leaves so low that the heart shall appear above them. The frequent stirring of the soil should not be neglected. Heads may be expected the same year from June to October, afterwards from April to July.

The bed should receive a liberal supply of suitable manure every winter, which must be thoroughly forked in.

At the beginning of early spring remove all except two or three of the straightest and most vigorous shoots or suckers from the old parent plant, being careful to select from those *under* the stock. After the head has been cut for use, break the stem down to the root, to encourage the growth of suckers.

There is said to be two varieties of this vegetable, yet they do not differ essentially. One having a round, and the other a conical head. The edible qualities are about the same.

After the fourth or fifth year the old plants, notwithstanding their perennial quality, fail to produce good heads, and must give way to fresh ones, obtained as already described.

In preparing for the table "the whole head before the bloom begins to appear, is boiled; the pod leaves are pulled off, one or two at a time, and eaten by dipping in butter with a little pepper and salt—removing only the mealy part with the teeth. The bottom, when all the leaves are disposed of, is eaten with the knife and fork." The well known fondness of the French for salads is also exhibited in their use of this vegetable. They are said to gather the heads when no larger than a dollar, and eat the lower ends of the leaves raw, dipping them first in oil, vinegar, salt and pepper.

As an article of food, the artichoke is considered wholesome, though possessing very little nutriment. The flowers are said to curdle milk after the manner of rennet.

ARTICHOKE---JERUSALEM.

(*Helianthus tuberosus.*)

The origin of the word Jerusalem in the above name is ascribed to the English corruption of the Italian word *Girasole*, Sun Flower, of which it is a species.

It is grown for the tuber, by which it is propagated. It is a little less nutricious, but far more productive than the Irish potato, especially on thin lands. And this should commend it to the swine and cattle raisers of the State. "Sandy soil of fair quality is said to yield from 1,200 to 1,500 bushels per acre." * * * "The tops cured in autumn form an excellent hay, yielding five or six tons per acre."

The tubers are planted and cultivated very similar to the potato. It is hardier, and will withstand much more cold. A pleasant crisp pickle is made from the tuber.

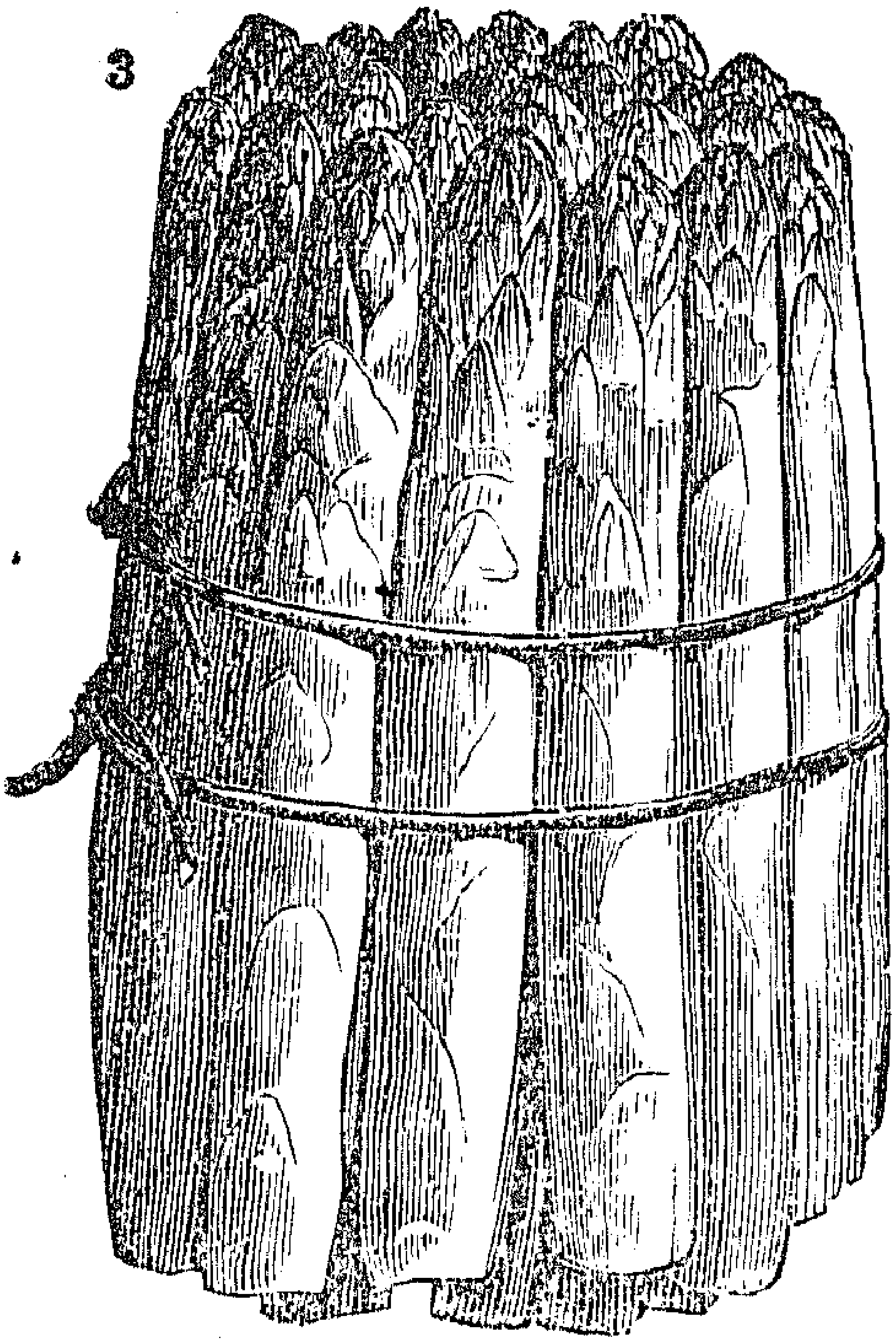
ASPARAGUS.

Asparagus—Officinalis.

ANALYSIS.

Potassa	6.01
Soda	34.21
Lime	4.39
Magnesia	3.03
Sulphuric Acid	4.13
Silicic Acid	13.49
Phosphoric Acid	18.51
Phosphate of Iron	3.41
Chloride of Sodium	12.94

3



From the Greek derivation of the word Asparagus, which means a young shoot before it expands, it is supposed to have originated with the Greeks as an edible vegetable. Be that as it may, it is certainly known to have been employed and enjoyed as a culinary herb for many centuries.

It is found in a wild state in Europe and also in Asia but of course destitute of the qualities which render it so popular on our tables and which have been wrought by the magic touch of cultivation.

This vegetable may be profitably grown for the general market as it seldom fails to command remunerative prices when properly grown.

The culture of Asparagus is commonly believed to require more work than any other garden plant. But this is scarcely correct, considering the duration of the bed—ten or more years—the average amount of labor per annum required is not more than is bestowed on many other and much less profitable vegetables.

The best soil for Asparagus is a sandy loam, deeply trenched and made as rich as possible. Without these conditions it is useless to attempt to grow this vegetable for profit. A rich loam—

made so by a liberal application of manure—will insure moisture in localities naturally dry. If the subsoil is inclined to be wet, the use of loose stones, or brick-bats, rubbish, at the bottom of the trench will serve a good purpose as a drain. The trench should be from twenty to thirty inches deep. The design is both to loosen the ground to that depth, and to provide by this means a plentiful supply of food for the plants. The stock of fertilizers should be abundant, for as long as the bed lasts, all subsequent applications of manure must be made in the form of top dressings, and cannot be worked down to any depth without injury to the young and tender sprouts. Cracked cotton seed composted with good stable manure, and used with the top soil of rich dry hammock land in alternate layers, will prove an excellent filling for the trenches. Remote from the sea-shore common salt, *chloride of sodium*, will be found very beneficial, as it enters largely into the composition of Asparagus. As much as two and a half pounds per square yard has been used to very decided advantage. It may be sprinkled over the layers of fertilizing matter in filling the trenches, afterward as a top dressing in early spring.

The old plan of trenching with the spade will be restricted to the family garden, being considered too tedious, and too expensive for market crops. The next best method is by the subsoil immediately following whatever other plow will give the deepest open furrow; the subsoiler not to turn over the soil. The beds may be of any convenient length—but not more than five feet wide, except where very large areas are planted—with an alley or walk two feet wide. The rows should be from fifteen inches to three feet apart—depending upon the extent of the crop—the greatest distance for field culture. Drop two or three seeds at intervals of nine or ten inches in the drill, one inch deep and press the earth compactly about them. This plan of sowing the seeds where the plants are to grow, is recommended by gardeners who have been successful in raising Asparagus. It dispenses with the tedious work of transplanting, and involves no risk in this climate. In garden culture, where the rows are only fifteen inches apart, it will be necessary to use the line in laying off rows, and measuring intervening distances. The seeds may be sown at any favorable time in January or first of February. In three or four weeks the plants will show above ground, when the less promising must be removed, leaving but one to a place. The summer work consists in carefully loosening the soil between the plants with a prong hoe, and keeping the beds free from weeds, which the use of salt will greatly facilitate, as its effect is as noxious to weeds as it is salutary to this in common with other saline plants.

In the fall, when the stems are withered, they should be cut down close to the ground, and the bed put in order for the annual spring dressing, consisting of well rotted barnyard manure, or superphosphate of lime, and salt, if in the interior. If superphosphates are used, let the quantity be at the rate of 3½ pounds to the square rod, or between 500 and 600 pounds per acre; if stable manure, the ground should be covered with it to the depth of two or three inches. Sea weed, if attainable, could be very advantageously used in the cultivation of this vegetable, being rich in soda, of which Asparagus is largely composed. In its absence we must look to wood ashes, or something else, to supply the required per cent. of alkali, and confide in the assurance of scientists, that plants do not seem to object to the substitution of one alkali for another.

Just before the buds start forth is the time to apply the manure. If done in the fall, as recommended for higher localities, not half the benefit will be derived, for which there is no excuse in this climate. Use the Asparagus fork. This job of working in every spring, the supply of manure, is a nice one, and requires a skillful manipulation of the fork, or prong hoe, to do the work thoroughly, and at the same time avoid bruising the young sprouts that may be pushing up.

If the conditions of soil, preparation, etc., have been fully complied with, some shoots may be gathered this season. The size and vigor of them will decide. In gathering, let the earth be removed down to the bottom of the stalk, and with a pointed knife cut off the shoot in a slanting direction. As new shoots are constantly putting forth from the same stool, great care must be used to guard against injuring the smaller ones.

Select the largest when they have attained the height of three to five inches, and the heads compact. The gathering season must not be too long protracted, nor the draft on the bed excessive, especially during the first years of growth. Since the bed can never be thoroughly broken up any more after once set with plants, the importance of protecting it from being trodden upon, becomes obvious. Judicious watering in dry weather is desirable during the summer months. Do not cut down the stems in autumn before they are withered. If this work has been premature, while the plant is still green and growing, the consequence will be to induce an immediate growth of shoots at a time when they could scarcely come to anything, even if favored by one of our exceptionally mild winters. As vegetables no less than animals require periods of rest, even in the tropics, undisturbed by fear of winter's cold embrace. The plants would also suffer from the loss of their customary yearly supply of stimulating food, and present sickly, attenuated stems, in place of those usually so robust and tempting.

The object in having the rows as near as fifteen inches—as in small plats, is not so much to economise ground, as it is to utilize the manure, of which the supply must be most liberal—some may think excessive, yet it is indispensable to success, even where the land is naturally good.

Some gardeners prefer the seed bed and transplanting method. It may be well to give both a trial. The same deep trenching and thorough manuring is required alike for seed and permanent beds. On the seed bed the drills need not be over twelve inches apart, and the seeds dibbled along, and carefully covered with an inch or so of soil. After they are up above ground, they should be thinned to a good growing distance. Keep the ground stirred and otherwise treated, as already described, through the summer. The time for transplanting to the permanent bed, which must be determined by inspecting the root—is when the bud has commenced to grow, about the first of February—assuming that the permanent bed has been thoroughly prepared, dig up the plants with the roots as little mutilated as possible, which must be carefully spread out in drill or trench opened to receive them, and which should be deep enough to give the crown a covering of two inches of earth when the trench is filled up. Probably eight inches or a little less, depending upon the size of the plants. It will be found convenient to cut one side of the trench vertical, so that the plants may be supported against it while manipulating the roots. Set the plants about ten inches apart, and use water freely in the operation and for several evenings thereafter if the weather is dry. Too much stress can scarcely be laid upon the importance of using great care in handling the roots. They should not be bruised nor suffered to become dry.

The duration of an Asparagus bed varies from ten to twenty years, determined by the treatment received. One fruitful source of injury is excessive gathering. Shoots must be left to induce the growth of roots for future supply. The first indication of exhaustion should be heeded.

VARIETIES.

There seems to be a doubt, and very generally entertained, as to there being more than one variety of this vegetable, the COLOSSAL. Mr. Gregory, of Marblehead, Mass., however, offers what he calls a new and superior variety, called *Defiance*.

SEED FOR AN ACRE.

One ounce of seed will plant about sixty feet of drill. One pound will produce 3,000 plants, and six to seven pounds will be required for an acre.

PREPARATION FOR MARKET.

The shoots are tied up in round bunches of twenty to thirty shoots each with bass matting.

PROFITS.

That this may be made a very profitable crop, a single observation will suffice to show. Taking the minimum number of plants estimated to an acre of land, and allowing but two shoots to the plant gives 30,000 shoots, then with the maximum number of shoots to the bunch, we should have 1,000 bunches, for which the quotations in the New York market range from 75 cents to

$2.00 per dozen bunches, or from $750 to $2,000 gross per acre. Certainly an attractive exhibit of its possibilities. And not an illusive one with the advantages offered by the soil and climate of Florida, especially if assisted by artificial irrigation.

BEAN.

Phaseolus.

ANALYSIS.

Potassa	36.83
Lime	7.75
Sulphuric Acid	3.96
Phosphoric Acid	14.60
Silicic Acid	4.09
Chloride of Sodium	2.80
Soda	18.40
Magnesia	6.33
Phosphate of Iron	5.24

The BEAN is of Eastern origin, and is said to be found growing wild in Persia at the present day. It has been cultivated in the earliest ages of which we have any record. The Greeks and Romans held it in high esteem, and accorded it a prominent place in their most important feasts.

As an article of food "for man and beast" it is of great value, containing ten per cent. more nutriment than wheat. Yet, notwithstanding this, and the fact of its superiority to corn for horse feed, it is never cultivated for that purpose in the Southern States.

The Bean is grown on every variety of soil not too wet, and in all portions of the State. For market, earliness is an object, the deep soils of the elevated sections abounding with alkalies are best, since crops planted on hill tops are less liable to be nipped by late frosts. Wood ashes are beneficial as a fertilizer, and so are cotton seed, which should be passed through a mill to crack them, and applied to the land a month before planting time. Bone flour is another good manure, and old and thoroughly decomposed stable manure. If the soil is light and sandy, fresh barnyard manure and guano should not be used. Frequent watering in dry weather by some appliance for irrigation, would greatly enhance the value of this crop—as it would indeed of all others.

Break up the land deep and close, and after the manure is applied and plowed in, lay off the field into rows thirty inches apart. Then with a seed drill let the seed be deposited along this row with two or three inches between. The machine of course does its own covering. If without a seed planter—a misfortune truly, and one to which no market gardener can long submit—the seed must be dropped along continuously, or two or three seeds in a place, at intervals of five or six inches and covered with the foot. The seed must be planted two inches deep. Where manuring in the drill is preferred, the seeds are first dropped and the manure distributed over them; for which purpose the "lay off" furrows must be larger and deeper. Of course this method could not be practiced with fertilizers whose contact with the seed would be hurtful. In such cases it would become necessary to interpose a layer of earth between the manure and seed, or drills for the fertilizer may be made on either side, and parallel to the seed drill.

It will be better in the end to adopt broad cast manuring, as the roots of the plants very soon leave the drill.

DWARF OR BUSH BEAN.

EARLY MOHAWK is largely planted for the first crop by market gardeners, being considered less liable to injury from late spring frosts.

GOLDEN WAX, a very choice variety, of a beautiful waxy appearance, with round pods, stringless, and very productive. This Bean is highly esteemed as a snap for its rich flavor and remarkable tenderness. It is said to be an excellent shelled bean also.

BLACK WAX is another of the "wax" family of beans. This is a good variety, but not quite as early as the the Golden Wax.

RED and WHITE VALENTINE and LONG YELLOW SIX WEEKS are also early and productive varieties; round pods.

Of the Running or Pole Snap Bean, the GIANT WAX is perhaps as good a variety as any, and as a shelled bean. For winter use, DREER'S IMPROVED LIMA is not excelled.

CULTURE.

As soon as the Bush Beans will bear work, after coming up, run lightly through the alleys with a cultivator to break the crust on the surface of the ground, and destroy any embryo crop of grass or weeds that may be springing forth. Later on, the plants will require to have the earth drawn carefully up to the stems with the hoe. And if the land was properly prepared before planting, no other work will be needed. Beans must never be worked while the leaves are wet—whether from dew or rain—the dirt on the leaves occasioned thereby will cause the plants to rust.

Pole Beans should be planted about three and a half feet each way. As soon as the bed has been broken up and fertilized—the same as for bush beans—set up the poles and plant half a dozen beans around each about two inches deep. The poles may be driven in first and the manure scattered around and chopped in. Very little after work is needed except to keep down grass and weeds.

SEED FOR AN ACRE.

To plant one acre with Bush Beans will take from one and a half to one and three-quarter bushels. One quart will plant 100 feet of drill. Half a bushel of seed will plant an acre with Running or Pole Beans.

The Bean is regarded as one of the staple vegetables of Florida. Not so profitable as some others, but it is easily grown, and in those sections where it is chiefly cultivated, easily harvested.

BEET.

Beta Vulgaris.

ANALYSIS.

Potassa	19.51
Soda	21.12
Lime	3.25
Magnesia	6.96
Sesqui-Oxide of Iron	0.09
Sulphuric Acid	2.46
Carbonic Acid	29.10
Phosphoric Acid	2.39
Chloride of Sodium	2.35
Sand and Silicic Acid	14.11

This valuable esculent is said to have obtained its name from a fancied resemblance of its seed to the second letter of the Greek alphabet. It is a native of the seashore, and grows wild along the shores of the Mediterranean Sea. The best soil is a deep sandy loam, thoroughly enriched with ashes, salt, cotton seed, and old stable manure. Seaweed, plowed under some time before planting, would serve an excellent purpose.

This is a profitable vegetable to grow for market if early enough. Our ordinary winters are sufficiently mild to permit its open air culture with safety. Occasionally, however, they are "nipped" by a December or early January freeze in the northern districts of the State. This is especially the case when it is planted in valleys where the soil is much more suitable—aside from its greater fertility. On the hill tops the crop is much more likely to escape injury from cold.

If the crop is to be worked by hand, the rows need not be more than twelve to fifteen inches apart, but if horse-power is to be employed—greater distance must be given—from two to three feet. When the saving in seed—which are costly—the better work, and greater dispatch are duly considered, no market grower of this vegetable can afford to be without a good seed drill. The seed should be dropped along at short intervals of an inch or two to insure a stand in drills three inches deep. They should not be thinned to a stand the first going over, as they are liable to be destroyed by cut worms. When finally reduced to a stand, they should be about six inches apart where the rows are close, and four inches in the wider rows. If the weather is dry at the time of sowing the seed, the earth should be well pressed down, either with a roller or by walking on the planted row. The seed will vegetate sooner by being soaked the night before in water. The young plants removed in the operation of thinning, may be used in extending the plat by transplanting. It is one of the very best vegetables for successful transplanting we have. On account of which, the sowings for a family garden are frequently made in a box, relying entirely on transplanting. As to the labor, it is no greater than thinning, and almost as expeditious. And the per cent. of loss in transplanting beets is quite small, scarcely appreciable.

VARIETIES.

EGYPTIAN TURNIP—The earliest and perhaps the best—deep crimson, sweet, and of delicate flavor.

EARLY BLOOD TURNIP—This was the standard among our truck farmers, before the introduction of the Egyptian, which is claimed to be earlier.

EARLY YELLOW TURNIP—Similar, except in color, to the Early Blood Turnip.

PINE APPLE—An English variety of superior quality.

The above are cultivated for the table. For feeding stock and especially milch cows, a larger variety of the Beet family, MANGEL WURZEL, is extensively raised by Northern farmers. There is the LONG RED, and LONG YELLOW MANGEL WURZEL.

The immense yield of this vegetable—exceeding that of the Sweedish or Ruta Baga turnip, makes it the cheapest for stock known.

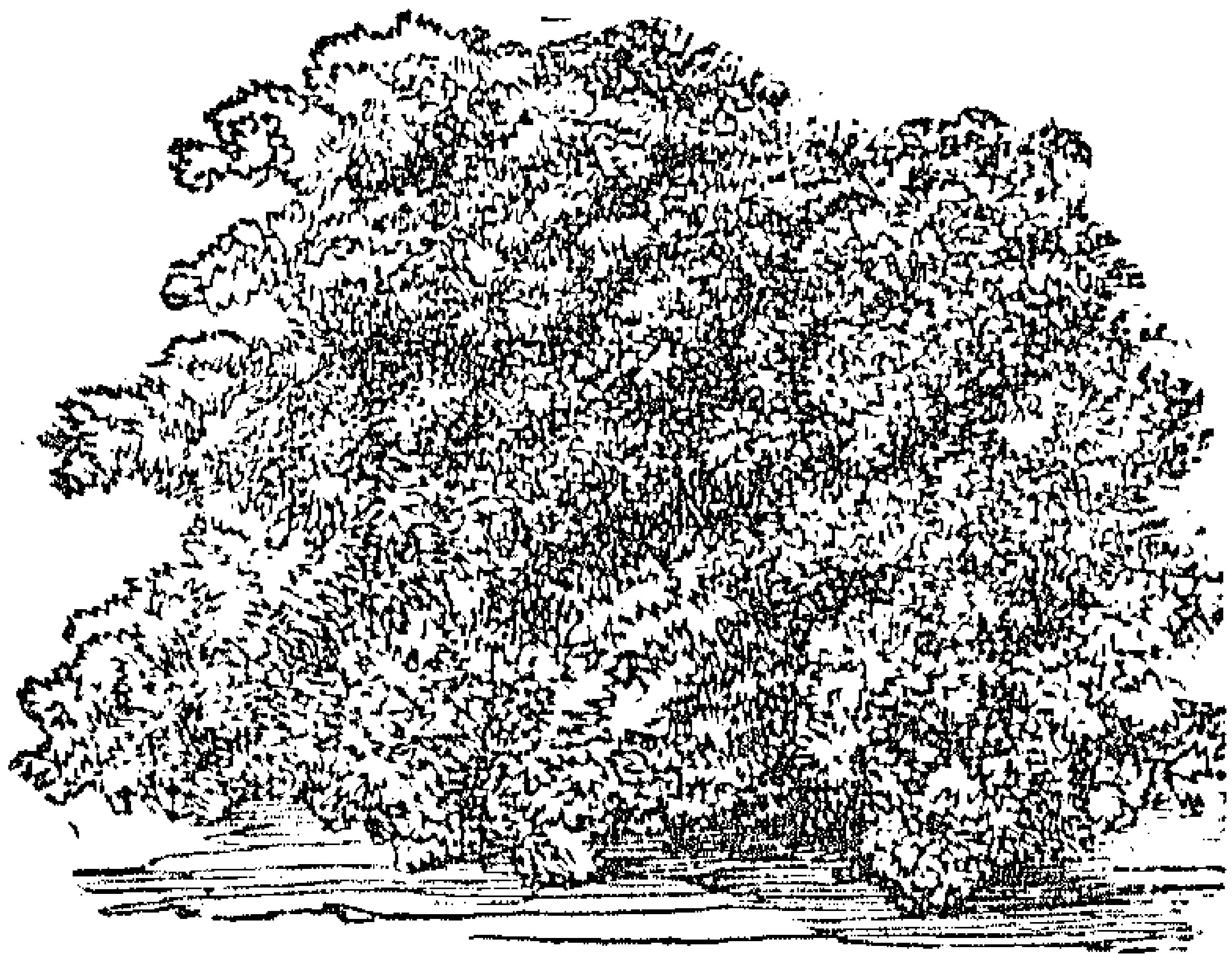
The WHITE or SUGAR BEET is largely grown in Europe and in parts of the United States for sugar making. It can never compete with the sugar cane, however, as a sugar-yielding product.

Beet growers for Northern and Western markets should begin to ship by the time the beets are half grown. Crop off the top within two or three inches of the base.

Sow the seed about the first of November. The quantity will of course be determined by the distance between rows, and closeness in the drill—varying from four to eight pounds per acre. When sold by the hundred it is best to ship in barrels.

BORECOLE.

Brassica Oleracea Fimbriata.



This vegetable, known also as "Kale," and "German Greens," is one of the hardiest, and at the same time, one of the most delicate, for table use, of the cabbage tribe. It is extensively cultivated in all European countries, and also in some of the Northern States of the Union, where it is raised, though not largely, for market.

The most popular market variety is DWARF GERMAN GREENS or SPROUTS. It is slightly tinged with a bluish green color, similar to the Rutabaga turnip.

GREEN CURLED SCOTCH, a dwarfish variety as to height—generally about eighteen inches—but spreads to a diameter of three feet. The leaves curl up handsomely and make an attractive bed. This is considered the hardiest variety—not affected by any degree of cold above zero, except to be made more tender and palatable.

PURPLE BORECOLE is the favorite variety with the Germans. The English prefer a dwarf variety known as "Cottager's Kale." "It is about twelve inches high, double curled, and feathered almost to the ground."

BORECOLE has a large, loose open head, of agreeable flavor, requiring no protection from frosts, such as visit Florida, and the wonder is that it is so entirely overlooked.

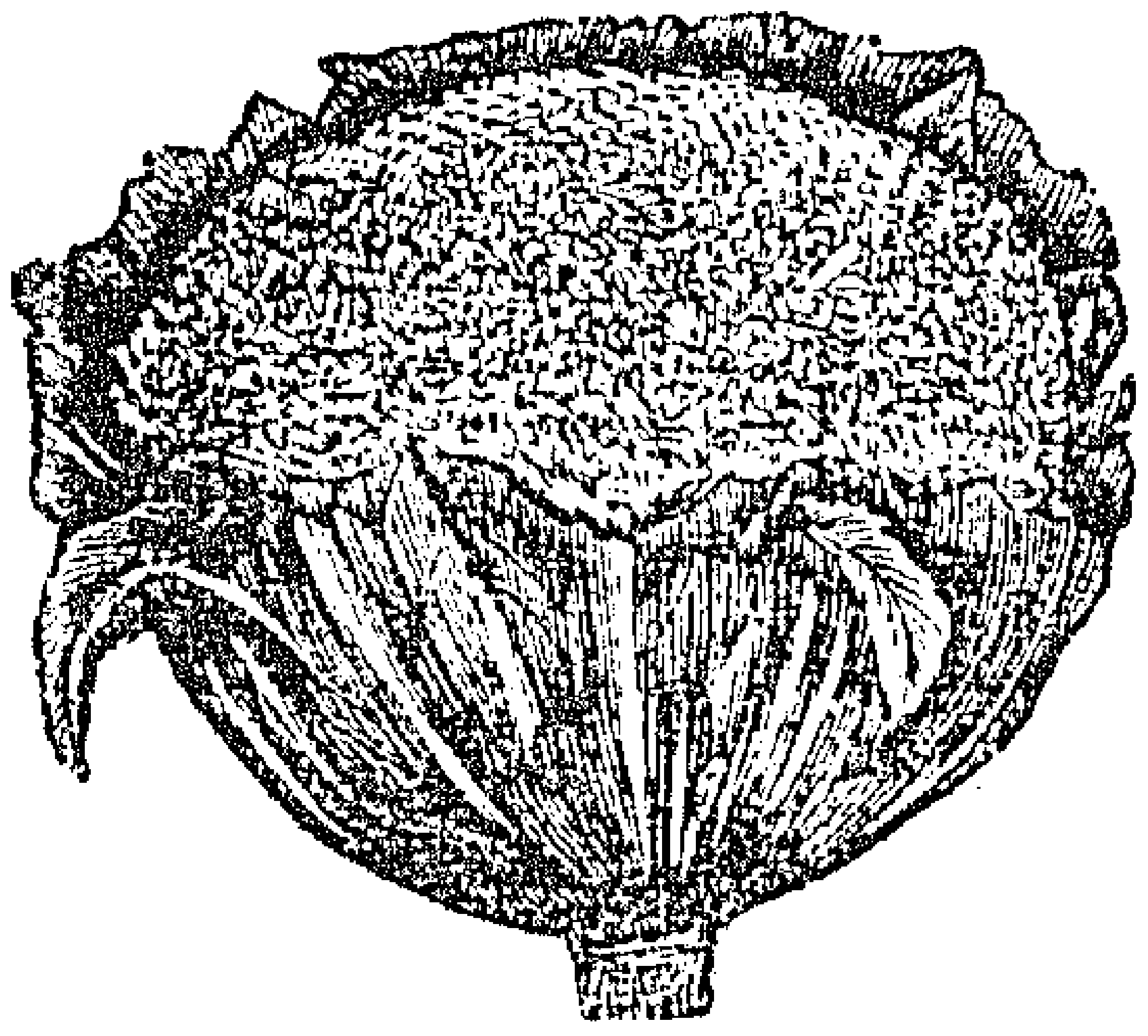
The culture is similar to that of the cabbage, which is minutely described under that head, and so of the preparation of the soil, fertilizers, etc. It must, however, have more space than that fixed upon as an average. In rich soil the plants should not be set nearer together than two and a half by three feet.

Sow the seed in narrow beds about first November and transplant when the plants have four leaves. Or the seed may be sown, three or four to a hill, where the plants are to grow. It is important to "earth up" the soil around the base of the stem to guard against the upsetting of the plant by the wind, after the leaves are pretty well grown. The tops become quite heavy. This should be done before the leaves have become too large for manipulating with the hoe, without breaking or bruising them.

BROCCOLI.

Brassica Oleracea Botrytis.

There is no doubt that this vegetable is intimately allied to the Cauliflower. Indeed some gardeners object to their separation. Although not as delicate of flavor as Cauliflower, yet it possesses advantages which should commend it to the attention of market gardeners.



Broccoli is a a hardier plant than Cauliflower, and is therefore safer to plant in Northern Florida, where the Cauliflower is frequently killed. It is said to be able to resist a degree of cold as severe as 25° above zero, and sells for only three per cent. less than Cauliflower. Another advantage over that vegetable, as a market product, consists in its standing shipping better.

Like the Cauliflower, it is a gross feeder—requiring the land to be made exceedingly rich—and can be much more successfully grown on moist, than it can on dry land.

The White Cape is perhaps the surest, of the different sorts, to head. The heads—of only medium size—are of a creamy white, and compact.

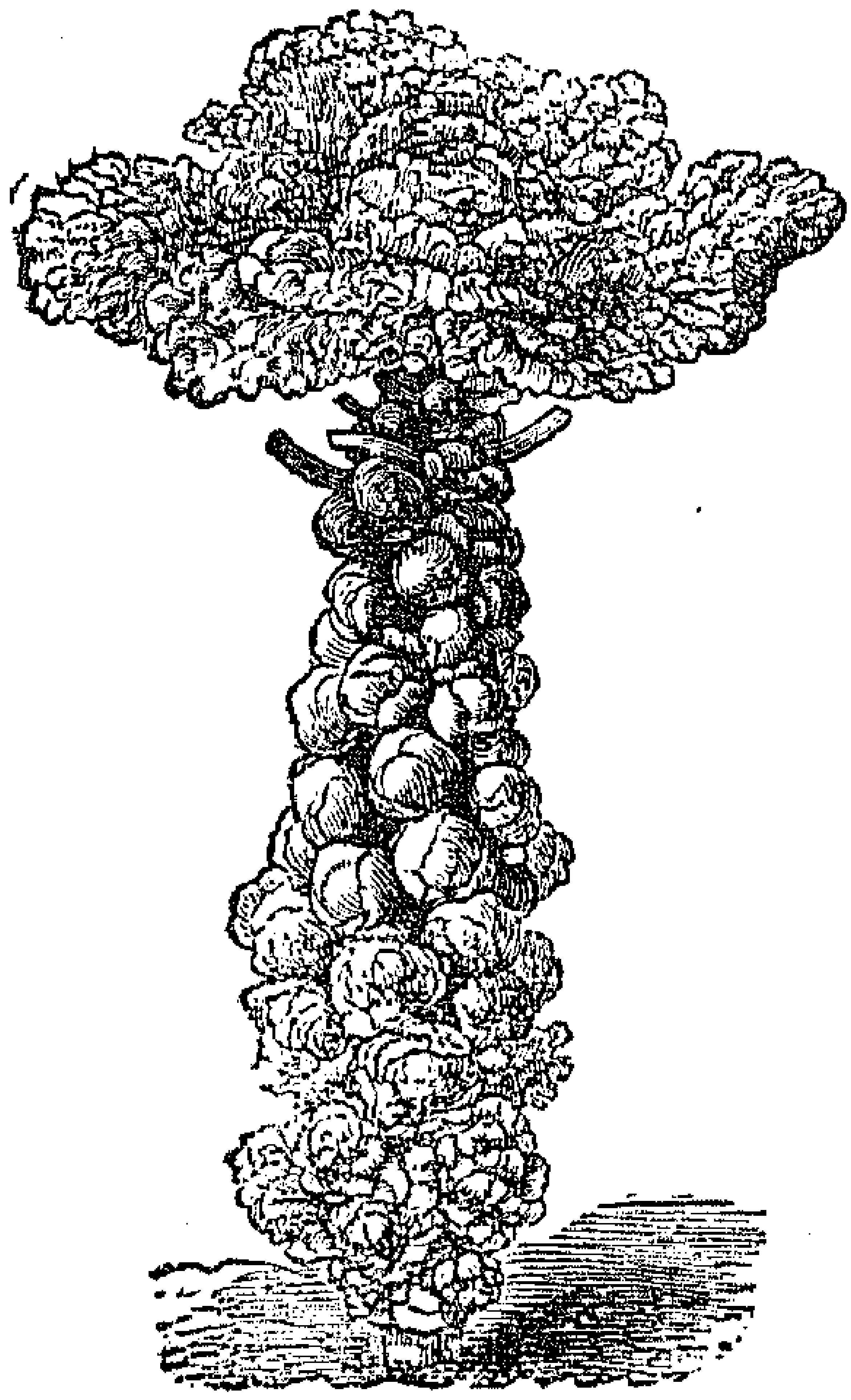
Purple Cape differs from the preceeding in iittle else than color, which is of a greenish purple. It is thought to be a little hardier than the white, but commands less price on account of its color.

Early Walcheren makes the earliest heads, yet not as compact as some of the others.

See Cauliflower for directions respecting cultivation, etc. Sow the seed first of November.

BRUSSEL SPROUTS.

Brassica Oleracea.



This is another "Greens" bearing vegetable. It is much esteemed in England, where it is extensively grown; but it is very little cultivated in this country. Being delicate, and quite sensitive to cold, the Northern winters are too severe, while here at the South where it may be grown it is seldom seen. By some it is thought to be a variety of the Savoy family of cabbages, tender and of delicate flavor.

Its appearance is peculiar. Growing to the height of four feet under favorable conditions, and the stalk covered with little green cabbage heads, about the size of walnuts, which spring from the base of the leaves. The leaves drop off and the little buds or heads are left sticking closely around the stalk.

The top leaves—comprising the crown, may be cut off and boiled like cabbage, but the buds around the main stalk are mostly prized and eaten.

The sprouts are good all winter, cultivate the same as Cabbages, setting the plants two feet each way.

CABBAGE.

Brassica Oleracea.

ANALYSIS.

Silicic Acid	0.06
Sulphuric Acid	1.12
Phosphoric Acid	1.27
Phosphate of Lime	0.12
Lime	0.29
Magnesia	0.35
Potash	2.09
Soda	3.02
Chlorine	0.08

This is one of the most valuable of vegetables to the Florida market gardener for the following reasons:

1. It can be grown through the winter months, to meet the early spring demand in higher latitudes.

2. The limited area in which this immunity is enjoyed, will always insure remunerative prices.

3. The bulk of the crop may be shipped at a season of the year when the delay of a day or two will not materially affect its market value.

4. It is easily cultivated; is liable to fewer casualties in production and therefore surer; and will bear without injury a considerable amount of rough handling in transportation.

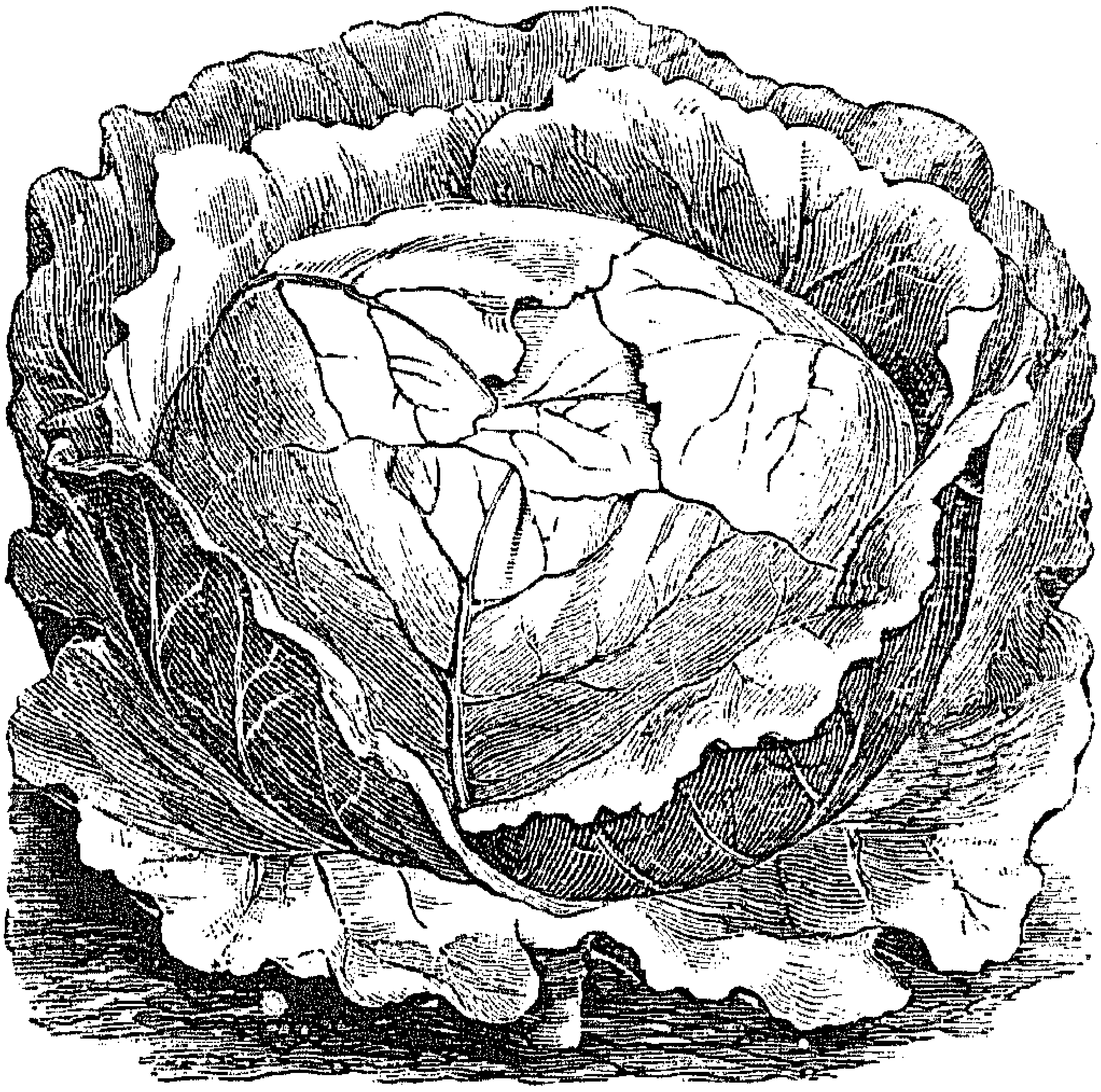
VARIETIES.

The varieties of the Cabbage—judging from seed catalogues are quite numerous; but there is little doubt that in many cases the same Cabbage bears as many names as there are or have been seedsmen—the differences claimed being either imaginary or due to the modifying effects of climate, soil and culture.

Among those most successfully cultivated by market gardeners may be mentioned:

EARLY JERSEY WAKEFIELD: Is an early and very popular variety in the Northern market. Here it does not attain much size.

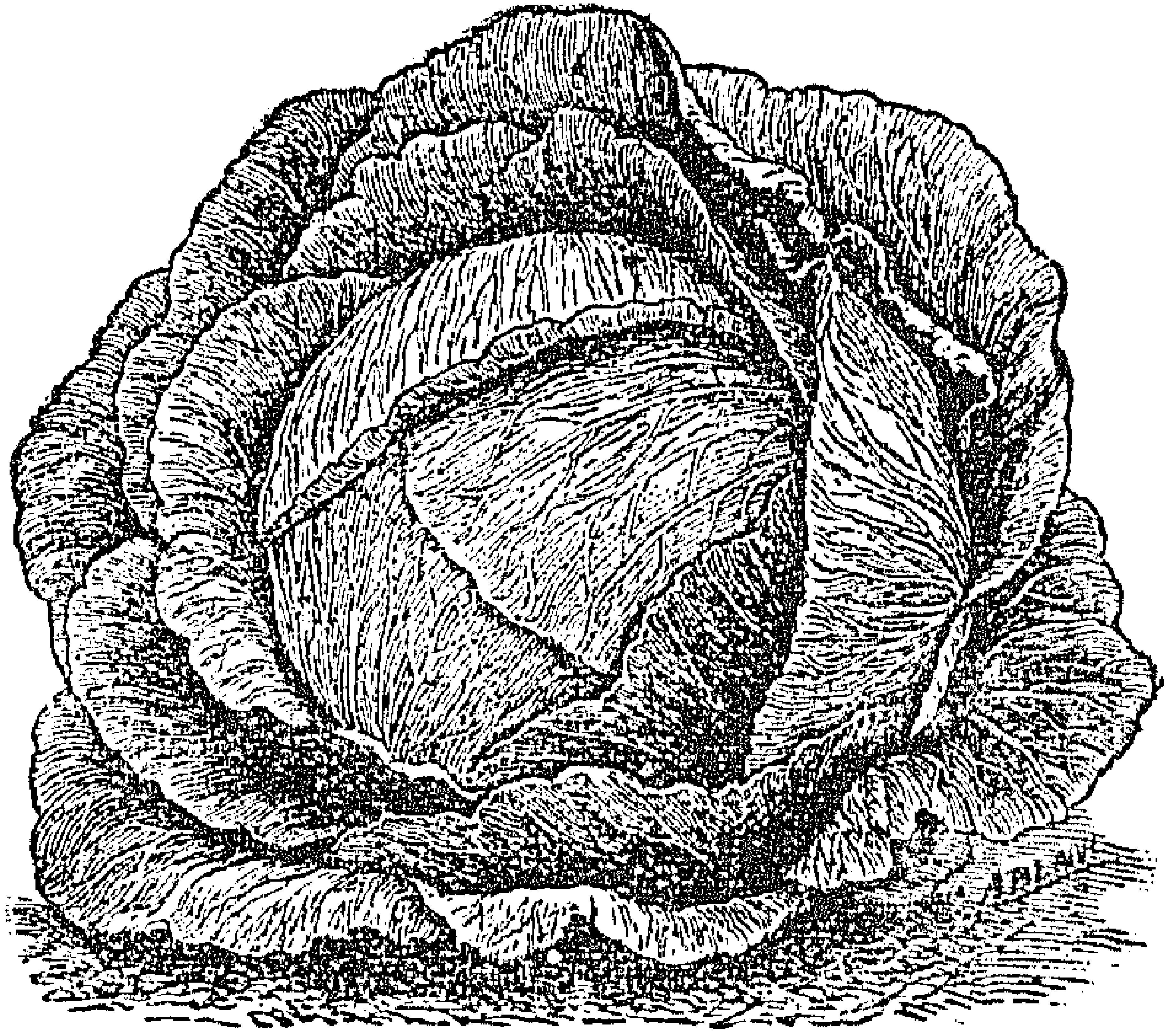
EARLY WINNINGSTADT: An excellent kind of good shipping size when properly cultivated, and a sure header. It grows well on any kind of land. The heads are conical and very firm.



FOTTLER'S IMPROVED EARLY BRUNSWICK: Is one of the best varieties for the general market. Heads of medium to large size; they are flat on top, and very handsome. It is largely planted.

EARLY GIANT BLEICHFIELD: This is the earliest of the large heading varieties. Of recent introduction and not much known, but as far as tried has given great satisfaction.

FLAT DUTCH: An old standard sort, and favorably regarded everywhere. Has a short stalk and fine, large, flat head.



HENDERSON'S EARLY SUMMER: This is a good cabbage for warm weather, has a head of medium size.

IMPROVED AMERICAN SAVOY: The Savoy Cabbages are more delicately flavored than any others, and should always be grown for home use. They are also planted for shipping, but the heads are not so firm as most of the other kinds.

QUANTITY OF SEED FOR AN ACRE.

One ounce of Cabbage seed will ordinarily produce 2,000 plants. So to plant an acre two feet each way, thus allotting four square feet to a plant would require 10,890 plants in exact figures; the product of about five and a half ounces, but eight ounces—half a pound—will not be too many to provide.

As the sowing of seed should begin the latter part of September, when the heat of the sun is intense the greater part of the day—a cool shaded spot in the garden should be selected for seed beds. But it will not do to rely upon trees for protection, for violent rain-storms and the drip from trees are about as fatal to young plants as the sun's rays. It will therefore be better to provide a moveable shelter of cheap cotton cloth, one that can be quickly and easily adjusted for sudden emergencies. With such an arrangement, which need cost but a trifle, the plants can be exposed to sunshine or not as may be desired. Sowing in boxes, when practicable, will be found of advantage, both on account of the greater facility in sheltering the tender plants, and the better protection from insects. The boxes should be raised from the ground two feet or more. If beds are adopted, make them four feet broad with walks two feet wide for convenience in sowing, weeding, thinning, watering, transplanting, etc.

The soil should be only moderately rich, but light and well pulverized—very rapid growth makes the young plants too delicate. Sow the seed in drills one inch deep and four inches apart, and avoid the common error of sowing too thick. Lay a board over each drill after covering and press down firmly. For a seed bed a plank laid over the covered drill and walked upon answers every purpose. Should the plants, in spite of every effort to the contrary, be crowded, as is very apt to be the case, remove them to other beds or boxes, as soon as they have four leaves, and give them a distance of two by four inches each.

Begin seed sowing about the 20th of September, and continue with intervals of a week until 1st December. The object for extending the period of sowing through so many weeks is to multiply the chances of the young plants escaping the ravages of insects, and the better to insure favorable seasons for at least a portion of the crop. Be sure to have an ample supply of plants. Beginners frequently make a serious, and sometimes an irreparable mistake in this matter. Better have a surplus, and submit to the loss of a few cents or dimes, than incur the risk of a good stand. In those sections of the State where insects—particularly the cut worm—are troublesome, twice as many plants should be provided as the area to be planted calls for.

Fine specimens of cabbage heads, large and firm, have been produced all over this State, and upon almost every kind of land. Cabbages grown on oyster shell land near the coast, are said to have escaped "*club foot*" during an experience of fifty years. Lime in some form is essential, and must be applied to soils in which it is deficient. Bone flour—phosphate of lime—is an excellent fertilizer, and so is stable manure, or pure guano combined with gypsum—which is the sulphate of lime. Common salt will furnish soda, and ashes potash. Cotton seed is another good manure. They should, however, be cracked and applied some little time in advance. If the cake is used mix it with gypsum. The quantity of fertilizing substances required for an acre of ground will depend upon the character and condition of the soil. Each cultivator must decide for himself. Market gardeners in the vicinity of New York make an annual application of from 75 to 100 tons of stable manure, or 1,200 pounds of Peruvian guano, or one ton of Bone flour. This heavy manuring, it is true, is for heavy cropping, lapping one crop over another. But will our climate not admit of raising as many crops in a season as that of New York? This is just the point. Our intensive system must advance a few steps. We need more liberal fertilizing, and better cultivation, in order to realize the rich harvests which Providence, under these favoring skies, has placed within our reach. As long as the cost of seed, the value of land, and expense of cultivation are as great in poor as good tillage, so long will it be false economy to restrict the plants to an inadequate supply of food.

In general terms, the land, to bring a good crop of cabbages, should be rich enough to produce sixty bushels of corn.

It is scarcely necessary to add that cow-pen lands are admirably adapted to this, as they are to almost every other crop, especially if the surface is turned under two or three times while being trodden by cattle.

With the ground closely and deeply ploughed—subsoiled, if needed—and well fertilized, the next step is to "lay off." Some of the early varieties of cabbage are planted as close as 1½x2 feet, while the "Marblehead Mammoth" requires nearly double the distance. Two feet each way is a fair average for the general crop. This allows four square feet to the plant, and will give 10,890 plants to the acre. Or in round numbers, 10,000, making a liberal discount for casualties, imperfect stand, failure to head, etc. If the land is approximately level, it may be checked off with a plow. If so hilly as to require horizontal rows, the distance along the rows may be rapidly and accurately marked by a spacer.

As the plants in the seed bed or boxes arrive at the proper size commence transplanting.

Should a rainy day happen along when everything is in readiness, improve every moment of it. But do not wait for such a spell to the probable detriment of the plants. The transplanting can be accomplished just as successfully without as with a rain. Its absence only imposes a little more labor, and diminishes the number that might be put out at one time. For if the weather is warm, the work had better be done late in the afternoon. The seed bed should be softened with water beforehand so that the plants may be taken up without injuring the roots. Place them as fast as they are gathered with the aid of a trowel or wooden paddle into a shallow vessel containing enough water to keep the roots wet, and just before planting dip the roots into a sort of thin mortar, previously prepared of cow dung, clay and water. This operation is called puddling the plants; the effect of which is to keep the roots moist, thereby inducing a quicker growth. Set the plants deep into the ground and be careful to press the earth well up to the roots, finishing the job with a little water, which settles the soil between and around the roots still more effectually.

The fall and winter plantings will rarely require any other attention, until it becomes evident they have taken root, when with a prong hoe, the soil immediately around the plant must be loosened, especially in clay lands, where it gets very hard from the process of transplanting.

The tap-root should be pinched off if not broken by the act of digging up; the reason for which is, its alleged interference in some unaccounable way with the heading of the plant. It is a well-established fact, that Cabbages planted where they are to remain permanently, do not produce as many nor as firm heads as the transplants, and this would seem to favor the tap-root theory. Some years since the experiment was tried in one of the most intelligent communities in this State by a number of gentlemen, and resulted in favor of transplanting. It will pay in the end to subject the plants to close inspection and reject all that are deficient in fibrous roots. They rarely come to much.

For at least a fortnight after the bed or field has been planted, supply all missing places, caused by worms or otherwise, as fast as they occur.

Frequent stirring of the soil is universally conceded to be of great advantage to the Cabbage crop, which not only promotes its more rapid growth, but its tendency to head—since heading is one of the wonders wrought by cultivation—and never seen in the wild plant. The idea of working the Cabbage bed "early in the morning, while the leaves are wet with dew," quoted by every old farmer, originated, probably, from the supposed destruction to insects which would result from the adhesion of soil to the leaves. The cool portions of the day is always best for working tender garden plants, after hot weather has set in.

To prevent the heads from bursting after reaching maturity, lean the plant over to one side thereby breaking some of the roots and thus diminish the number of its feeding organs.

In gathering for shipping, cut the heads in the cool part of the day, and spread in the shade several hours before packing in barrels. Strip the head of all outer leaves except two or three to protect from bruises, and pack very closely in the barrel, in which should be a number of holes for ventilation, and if canvass is used for top heading, fill the barrel until the heads project above the staves so as to insure a full package.

After the land has been thoroughly prepared, the subsequent culture is light and can be performed with the aid of implements by hand. The garden plow and hand cultivator make it possible to dispense with the use of the horse in several of our market crops, this among them, and gain thereby. Such a declaration may sound like taking a step backward, but it is nevertheless true. Broadcast fertilizing will eventually be adopted by vegetable growers, so that it will be desirable to plant with an eye to obtaining as much as possible from a given area, no matter how cheap land may be.

Where horse power is employed wider rows are required—and consequently there will be fewer plants than where the field or patch is worked by hand, i. e., man power. To illustrate. An acre in Cabbages for instance, which is to be cultivated by horse power, must have the rows three feet apart, while for hand culture they may be two feet or even less, to grow the same size Cabbage, a gain of thirty-three and a third per cent. To use figures, the three feet rows will contain 7,260 plants to the acre, and those having but two feet distance foot up 10,890, the distance in the drill to be the same in both—two feet. A difference of 3,630 in favor of close planting and hand cultivation, without estimating for those trodden down and otherwise injured by the horse, or the space to be left at the ends of the rows for turning.

CARROT.

Daucus Carota.

This vegetable, even for stock, is not grown to any extent in this State. In the garden, a row or two, for flavoring soups, is sometimes seen. It is very valuable root for feeding to stock of all kinds, either in the cooked or raw state. Combined in equal parts with oats, it is better horse feed than all oats. Besides, it is easily cultivated through our mild winters—requiring less fertility of soil than similar plants—and very productive. In New England, 600 bushels per acre is an ordinary crop. Smaller plots have been made to yield at the rate of 1,000 bushels per acre.

The varieties of CARROT, of which there are many, are divided into two families—

1st. Those with a regular fusiform root, which are named LONG CARROTS.

2nd. Those having one root nearly cylindrical, abruptly terminating, but continuing with a long, slender tap root, which are denominated HORN CARROTS.

The second kinds are preferred for their flavor, and for shallow soils, while the first is generally used for the main crop.

VARIETIES.

HALF LONG RED (stump-rooted), DANVERS, and LONG ORANGE IMPROVED.

Analysis of the root of the CARROT gives the following result:

ANALYSIS.

Potassa	37.55.
Soda	12.63
Lime	9.76
Magnesia	3.78
Sesquioxide of Iron	0.74
Sulphuric Acid	6.34
Silica	0.76
Carbonic Acid	15.15
Phosphoric Acid	8.37
Chloride of Sodium	4.91

Ashes, charcoal, lime, superphosphates, salt and gypsum are the special manures, nearly all of which stable manure will supply. It is best, after fertilizing the land, to plant some other crop—so it is not a root crop—and let CARROTS succeed that. If the ground is made very rich from recent manuring, the plant will make top rather than root.

For field culture, sow in rows two feet apart—about eighteen inches in gardens—and thin out to three or four inches apart in the drill. As the seed are very minute, mix fine sand with them in sowing. They germinate slowly, and unless care is taken with the preparation of the soil, it will be overrun with weeds before the young CARROTS appear. In the clay region of Middle Florida, this will be found an excellent vegetable for the dairyman and stock-raiser.

CASSAVA vs. TAPIOCA.

Many persons are of the opinion that CASSAVA belongs to an entirely different genus from TAPIOCA, whereas the first is the name of the "meal, or the bread made from it, obtained from the roots of several species of the genus Manihot (from the Indian Manioc)—plants of the family of the *Euphorbiaceæ,* which grow in the West Indies, South America and Africa." And the second, the Tapioca of commerce—sometimes called Brazilian Arrowroot—is the name for a delicate and nearly pure starch deposited from the juice of the same vegetable species as that which produces the meal or bread, as above stated, and called Cassava.

From the genus Manihot came the three species, *Manihot util-*

issima, *M. Aipi*, and *M. Janipha*. "The first is the bitter Cassava, indigenous to Brazil, and cultivated in other parts of South America. It is a shrub six to eight feet high, with a large tuberous root which sometimes weighs thirty pounds. This root contains a large proportion of starch, which is associated with a poisonous, milky juice containing hydrocyanic acid, and a bitter acrid principle. The other two species do not possess this poisonous principle. *All are used in the prepartion of the meal*," of which Cassava is the true name. "The root is well washed, then scraped or grated to a pulp, and this, when of the poisonous kind, is thoroughly pressed in order to remove the juice; but even if some of this is left in the meal, it escapes by its volatility in the process of baking or drying the cakes upon a hot iron plate. Afterward dried in the sun, the Cassava is kept as food to be mixed with water and baked like flour in large thin cakes." * *

"Its nourishing qualities consist in the starch of which it is principally composed."

The manifest object in these operations is the production of bread, and not starch. In a process adopted to insure the thorough expurgation of every vestige of poison, starch has been accidentally produced.

Starch is made by first cleansing the vegetable to be used of dirt; then it is scraped or grated by hand or machinery; after this grated pulp has been steeped for hours in pure cold water, the water is slowly drawn off from the top, and the precipitate or residuum is starch.

The following directions as to the soil for the Cassava or Tapioca, together with hints for cultivation, propagation, etc., etc., are by J. P. Langlois, Esq., in the English Agricultural Society of India.

SOIL.—This plant will thrive in any soil, although a sandy loam is the best.

CULTIVATION.—It requires no cultivation whatever, and is occasionally met with in Aurakan growing wild in the jungle.

PROPAGATION—By cutting, care being taken to use the stronger branches. The cutting must be from two to three feet long; to be placed in the ground in an upright position, and in rows four feet apart.

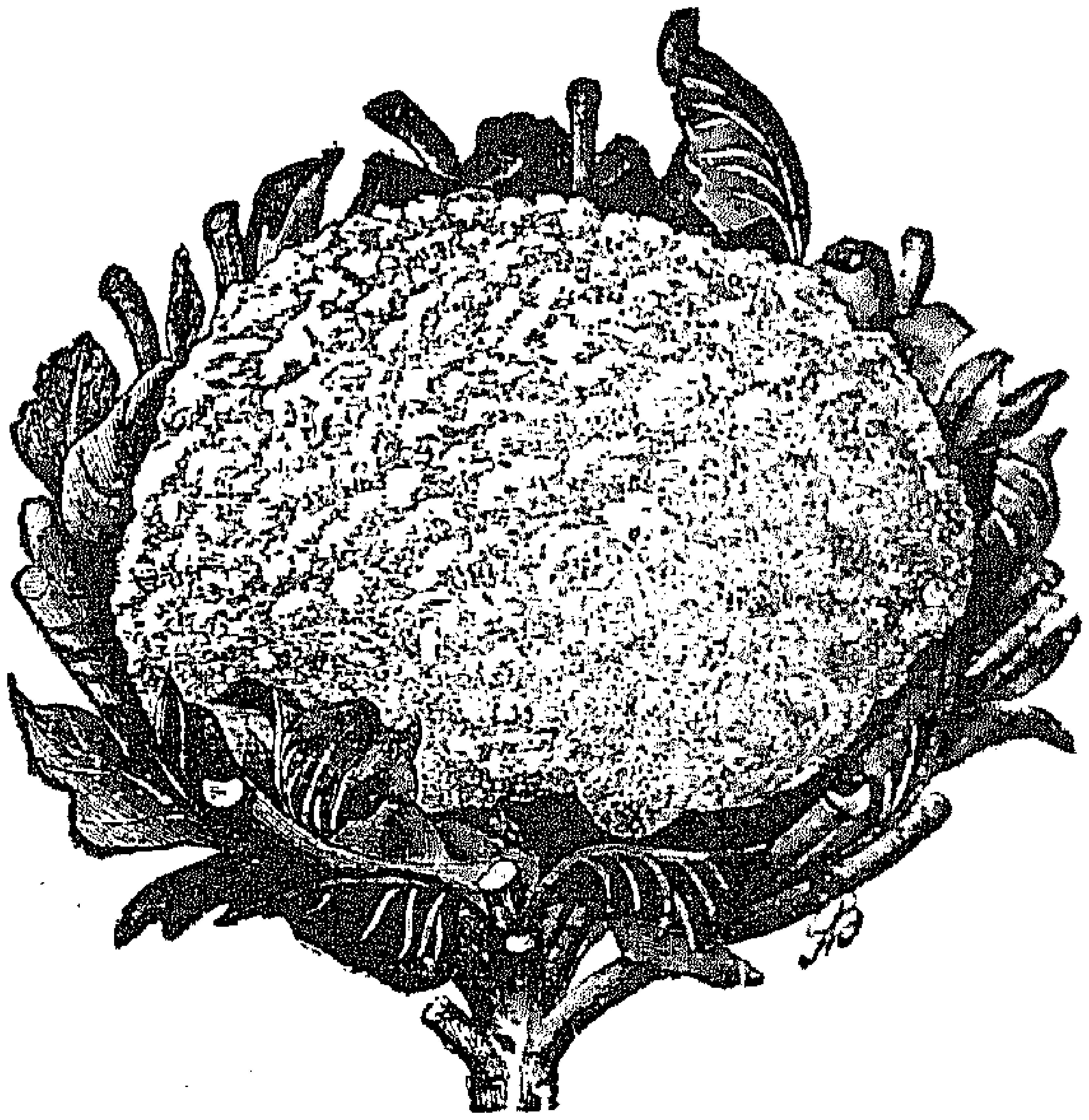
PREPARATION.—Twelve months after planting, the roots are fit to be dug up. They must then be well washed and put into a trough with water, in which they are allowed to remain six hours, when the outer bark will be easily removed, and then follows the grating of the roots, steeping in water for eight hours, which is but a minute account of making starch.

CAULIFLOWER.

Brassica Oleracea Botrytis.

Of all the *Brassica* family CAULIFLOWER is perhaps most highly esteemed wherever its good qualities are well known. By Northern market gardeners it is considered one of the most profitable crops raised by them.

It is, as has been already observed, nearly allied to Brocoli; so closely, indeed, that a distinction between them can be scarcely maintained.



As an article of food it is much more delicate and digestible than Cabbages. Hence persons of sedentary habits, whom experience has taught to refrain *in toto* from cooked Cabbage, can partake of this savory vegetable with impunity.

The cultivation of Cauliflower is as yet quite limited in Florida, but there is no good reason why it should not become a profitable market crop. It cannot endure any great degree of heat, on account of which it should be planted so that the crop may come off before hot weather. There is probably no vegetable grown for market that would derive more substantial benefit from artificial irrigation than this. Delighting in a moist soil, the effect of irrigation would be to insure its profitable culture.

According to Peter Henderson, whose opinions in all horticultural matters are entitled to the highest respect, "Any soil that will grow early Cabbages, will grow CAULIFLOWERS, as their requirements are almost similar." And, continuing the subject in his admirable work on "Gardening for Profit," Mr. H. remarks: "But as the product is more valuable, extra manuring and preparation of the soil will be well repaid."

Our own experience confirms this, except that Cabbages can be successfully produced on land too dry to perfect the CAULIFLOWER, and that this difference in their requirements is not peculiar to this climate. Mr. Henderson further adds: "In situations where irrigation could be practiced, it would be of great benefit in dry weather. We have occasionally found, when our beds were convenient to water, that even watering by hand has been of advantage. But few or no other crops of our garden will repay that labor." C. W. Johnson likewise recommends that in dry weather during summer, "a cup-like bowl be formed around each plant and filled with water at least twice a week, but as soon as the flower makes its appearance, it must be applied every other day." Which we cordially endorse, with the word "*other*," near the close of the last sentence, omitted, making it EVERY DAY.

We here insert an analysis of the CAULIFLOWER:

ANALYSIS.

Potassa	34.39
Soda	14.79
Lime	2.96
Magnesia	2.38
Sulphuric Acid	11.16
Sillicic Acid	1.92
Phosphoric Acid	25.84
Phosphate of Iron	3.67
Chloride of Sodium	2.78

By comparing the constituents of stable manure already given with this table, it will be seen how important a fertilizer it is in this, as it is in nearly every crop grown. The same is true of cotton seed, more especially after the oil has been expressed. Of the above special manures, we would recommend ashes, bone-flour, gypsum and salt.

In this State, most every truck farmer has some low, rich spot of bottom, lake or river margin, suitable for the production of the CAULIFLOWER. It must, however, be well drained land, and no matter how fertile it may *seem* to be naturally, a liberal supply of manure will more certainly insure handsome flower heads to the plants, and profitable returns to the planter.

Of the dozen or more varieties grown in the United States, the three following are recommended as well adapted to our soil and climate, viz:

EARLY SNOWBALL.—It is early; has large heads; a sure header; dwarf as to stalk, having short leaves which admits of being planted closer than other varieties.

EXTRA EARLY PARIS.—A superior variety, with fine white heads.

EXTRA EARLY DWARF ERFURT.—A favorite market variety; heads large and compact.

Sow the seed in boxes as you would Cabbages, using every precaution to avoid having them too thick, as the seed are too costly to waste; besides, when crowded, they become spindling and feeble. The soil in the boxes should be rich, finely pulverized and damp. Protect from beating rains, and for two or three hours during the heat of the day, if sown before the middle of October.

The planting season may extend from September to December, though the main crop should be planted by or before the 1st of November.

The ground for CAULIFLOWER, especially in stiff lands, can scarcely be too deeply broken up and pulverized. Being a delicate plant, great care is required in the process of working, to avoid coming in contact with the leaves, which can only be accomplished by light or surface culture. Hence the necessity of doing all heavy work previous to transplanting. Manure more heavily than for Cabbages; the returns will fully warrant it. As the plants, with similar treatment, attain a larger growth here than in the Northern States, they should have more distance. Therefore, with ample ground, the rows should be three feet apart, and the plants two feet in the row. Work early and often, drawing a little earth up to the plants each time. For late-planted crops, which head after warm weather has set in, in the Spring, break off some of the outer leaves to protect the heads after they have matured.

It is advisable to do this before maturity, where exposed to hot sunshine, as it tends to darken the snowy flowers, and thereby diminish their market value.

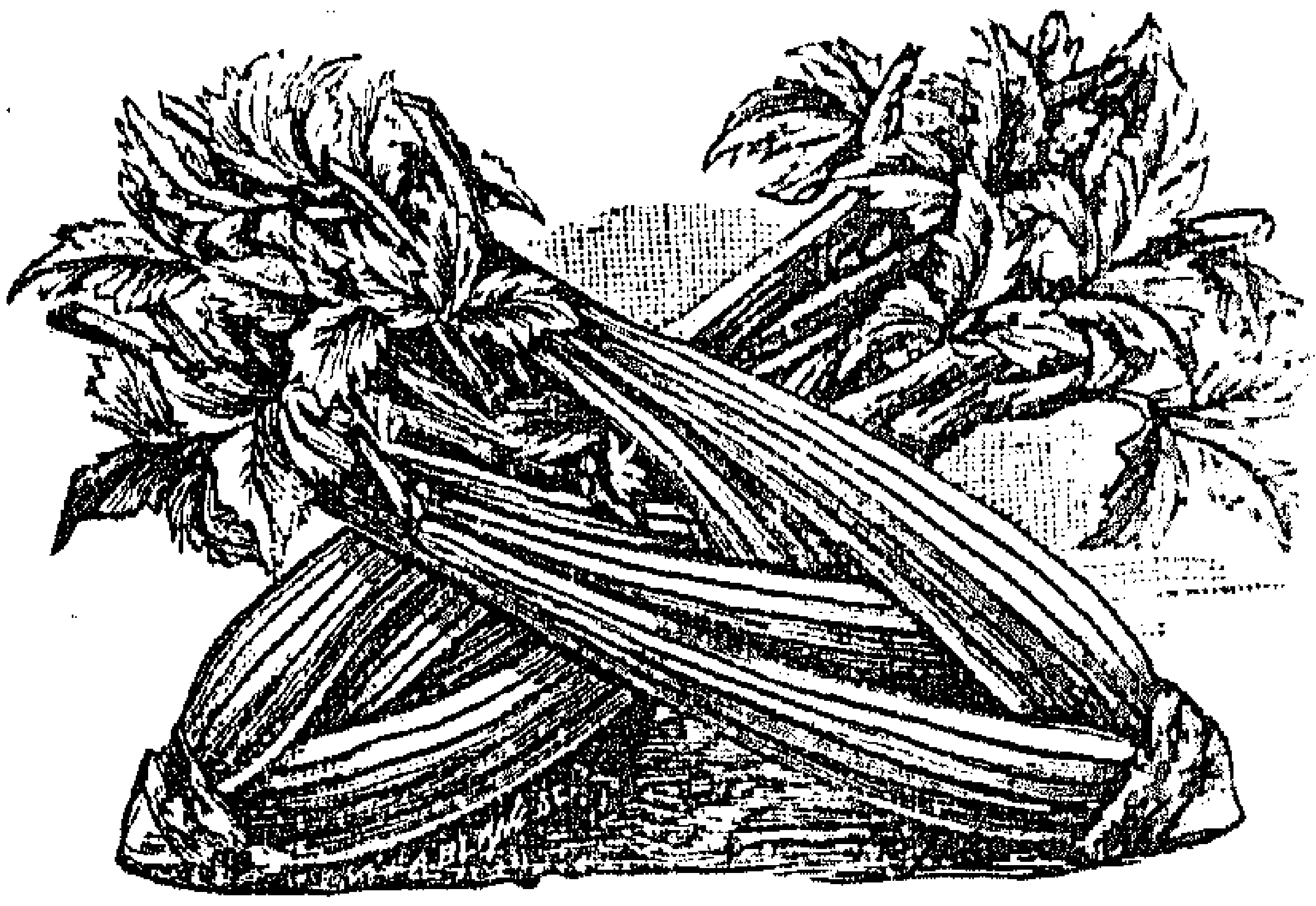
CELERY.

Apium Graveolens.

ANALYSIS.

Potassa	22.07
Lime	13.11
Magnesia	5.82
Oxide of Manganese	1.92
Sulphuric Acid	5.58
Silicic Acid	3.85
Phosphoric Acid	11.58
Phosphate of Iron	2.66
Chloride of Potassium	33.41

Contrary to the opinion prevalent among most of the market gardeners in this State, CELERY is one of the easiest and surest crops we can grow. It may also be made one of the most profit-



able. To do this, however, it is important, in addition to the essential requirements of soil and culture, so to time the planting, as to have the crop ready for market a month or six weeks earlier than the usual period. In other words, arrange the time of planting so that the shipments may begin in January instead of March as heretofore.

This being the maximum period of visitors to our State, when vegetables are scarce and costly, a large home trade would spring up, and in addition to Northern markets, profitable shipments may be made to Savannah, Charleston, Macon, Augusta and Atlanta.

The seeds are tardy in germinating, and the growth of the young plants is very slow; so that ample time must be allowed. It will require about three months from the time of the sowing of the seed for the plants to attain sufficient size and vigor for transplanting, and as much longer to become ready for market. Therefore for a January crop the seeds should be planted in August. Prepare boxes or narrow seed-beds as in Cabbage and Cauliflower, and protect against sun and rain when necessary. One ounce of seed will plant twenty feet of drill and six ounces will furnish enough plants for an acre, but it will be safe to provide one pound. They scarcely require covering, gently patting them in with the back of a spade will answer the purpose.

It will be useless to attempt to grow CELERY for market on any other but moist ground. To plant it on high, dry land—whether clay or sand—and depend upon watering, would be a failure. Near the sea coast there is no scarcity of land well suited to its growth. Indeed, this is its home. Wild CELERY or Smallage Parsely—an acrid, and to some extent poisonous plant—whence our delightful and wholesome vegetable was originally obtained and improved by the Italians—is a native of salt marshes. Yet this fact does not prohibit its culture away from the sea, provided salt is used freely with the manure. Alluvial bottoms, lake magins, and reclaimed swamp lands not unfrequently afford soils in which it thrives well.

Supposing a plot of damp, level land, with a *rich* soil to have been secured—it must be very thoroughly broken up with plow or spade, and free from everything calculated to interfere with clean, nice cultivation. If inclined to lumps or clods, use a harrow, horse or hand rake, or prong hoe, according to the area or nature of the ground. Where necessary to use salt—and it will be necessary in all interior localities—it may either be sown broadcast previous to breaking up, or afterwards in the drill along with the manure.

Lay off the rows 3½ feet apart—running twice in the same furrow. Into this furrow—which should be *broad* as well as *deep*—distribute strong, short stable manure at the rate of at least one good cartload to every fifty linear feet. It will be observed from the analysis that ashes may be freely used to advantage, also in smaller quantities, lime and gypsum. Cover the manure with a furrow on either side and level off with a board if operating on a large scale. Or the work of covering and levelling may be done with a hand rake. After this, the rows for setting out the plants may be marked by a small furrow—taking care to follow the first furrow as closely as possible. For the work of "laying off," a capital implement is the garden or hand plough. On short beds the line will be serviceable.

As the plants are taken from the seed-bed, the smaller stems and drooping leaves may be clipped off to advantage. This operation is also done a time or two previous to their removal, to encourage the growth of the roots.

Set the plants two to three inches deep and about five inches apart in the drill, using water copiously if the weather is dry, and press the earth firmly around the roots. With ordinary care they rarely require replanting.

When the plants are a foot high having taken root and grown off vigorously, draw the soil with a hoe from midway between the rows to the roots of the plants, and then with the hand pack it snugly around each, so as to force the branches and leaves into an upright position, This operation is repeated from time to time as required by the growth of the plants, and is called "blanching." After the ridges have reached the desired height, they are finished off with the spade, using the back to smooth the sides of each ridge and leaving them in shape like the letter A. About two weeks after the last operation the CELERY will be ready for use.

Another method of blanching is to make one job of it. After transplanting the plants, receive ordinary cultivation until full growth is attained. They are then treated as described for blanching, except that the work is all merged into a single operation.

Among the advocates of this plan are some noted English horticulturists. They claim that larger, finer bunches are obtained by it, and in less time; and moreover, that it "saves a vast deal of trouble to the laborer." The long-continued process of "hilling up," with the earth constantly surrounding the plant, impedes its growth, they think, and induces decay. There is no doubt that a plant will develop faster and more perfectly while enjoying all the essentials of growth without stint.

Blanching is also effected by using boards, straw, etc. Light being the source of all color, blanching is the result of its exclusion.

Some few gardeners still adhere to the old system of digging deep trenches, and filling up as the plants grow. The level culture, however, is so much less troublesome that it will soon entirely supersede trenching.

There are two distinct kinds of celery, white and red, and of these there are several varieties each. The Dwarf White Solid seems to be preferred in most markets, Boston alone excepted, although the crimson variety is admitted to be the richest, both in appearance and flavor.

INCOMPARABLE DWARF WHITE and INCOMPARABLE DWARF CRIMSON are very superior sorts, solid, compact, tender, crisp and juicy, and differ only in color.

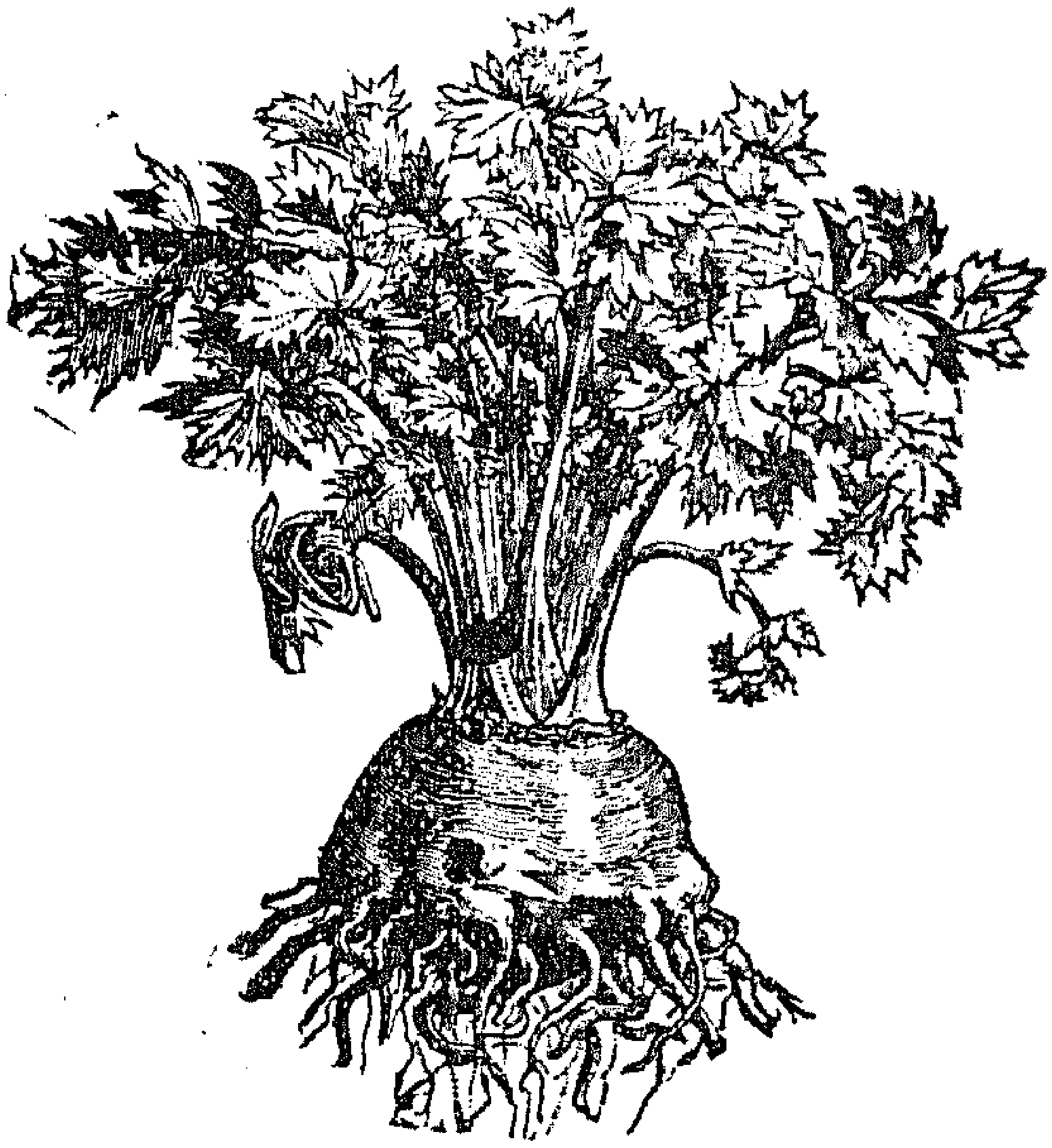
BOSTON MARKET is grown exclusively by market gardeners in the vicinity of Boston. It has quite a cluster of heads, instead of a single one like the other kinds.

GOLDEN HEART is also of dwarf habit, with a rich flavor, and of a pure golden color, very showy.

Peter Henderson claims to have produced a new variety, which he calls WHITE PLUMED. It is said to possess all the good qualities of the other white solid varieties, with the additional one of a peculiarly strong, upright growth. The leaves, of their own accord growing close, and parallel to the heart or center stem.

Beginners in celery culture are likely to become discouraged by the length of time it takes seeds to germinate during the hot months of summer—the season for planting the main crop—and find fault with the seed. They will come up in less than half the time in cool weather. A month or more may elapse after planting before the summer crop shows above ground. And the necessity of protecting the young plants from rain and sun during the heat of the day must not be forgotten. The drip from trees should also be avoided. And finally, do not neglect to go over the young plants two or three times with a pair of scissors, giving them a *shearing* while in the box or seed bed. It will induce a stocky growth.

CELERIAC OR TURNIP-ROOTED CELERY.



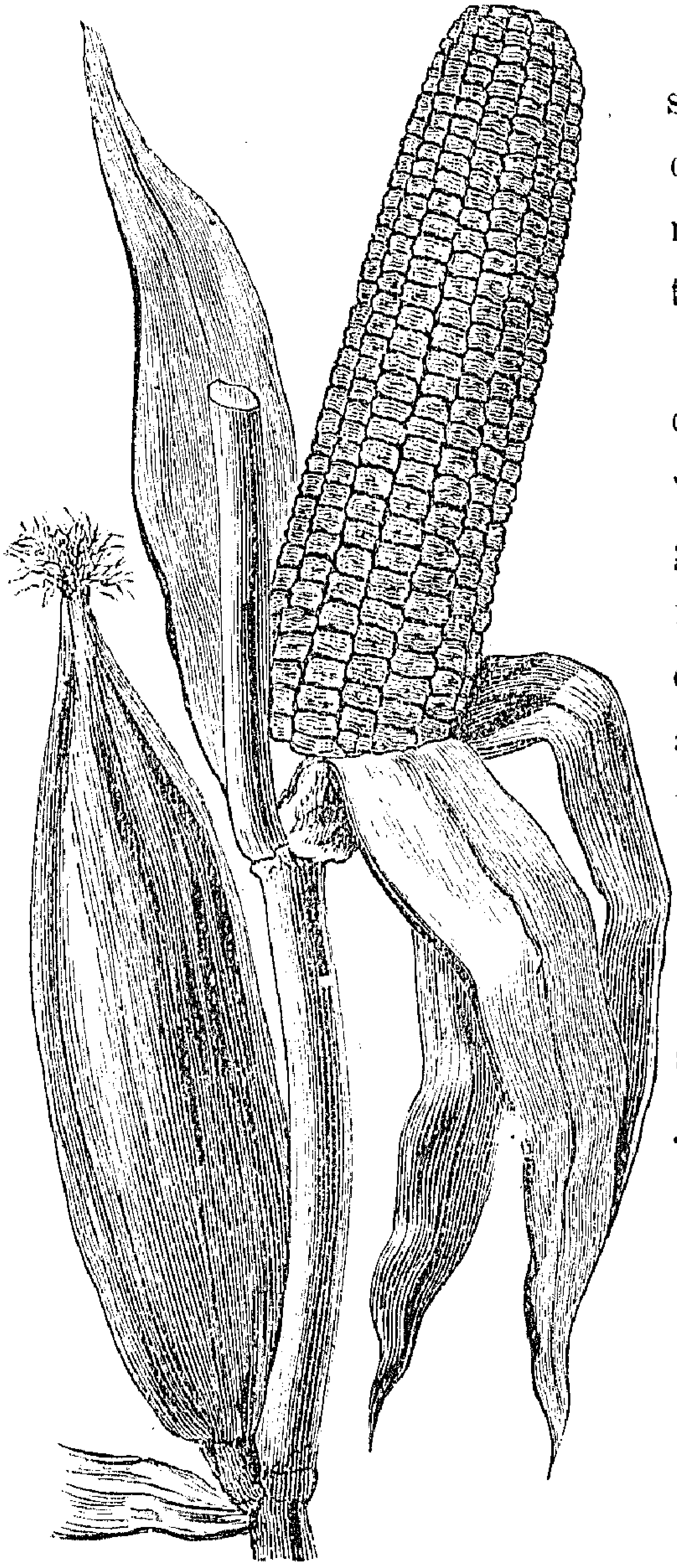
This vegetable is rarely seen in the United States. With the Germans, however, it is quite popular, and is extensively cultivated in the Fatherland.

It is shaped like a turnip, with a sweet, but well defined celery flavor, and is used chiefly in seasoning meats and soups.

The general treatment is, with the exception of *blanching*, similar to that of celery. The bulb is the only part used.

CORN.

Zea Mays.



EGPYTIAN SWEET.

The cultivation of CORN is so generally and so well understood in this State as to make it entirely unnecessary to enter into particulars.

The object in touching upon it at all is to suggest some varieties of rare excellence, give the analysis, and to remove, if possible, the prejudice our farmers entertain against one of our very best vegetables—*i. e.*, sugar-corn. If those who have been most determined in their opposition to all of the "little stalk" varieties will make just one more experiment, and faithfully carry out our directions, we feel confident they will never grow any other than the "sweet" sorts for culinary use in the green state. Besides, with a little care in protecting from late Spring frosts and bud worm in early Autumn, those conveniently located can realize handsomely by supplying hotels and boarding-houses right at home.

THE EGYPTIAN SWEET is a comparatively new variety, with large, fine ears, and unequaled flavor; commands a higher price than any other.

SEWELL'S EVERGREEN produces a good ear, and remains in the green state longer than any other kind.

MAMMOTH SUGAR, the largest of the sugar variety; very fine flavor.

TUSCARORA is another standard garden variety, but not sweet.

These varieties have been fully tested in this State, and have always given satisfaction.

Make the ground very rich, lay off the rows three to four feet apart, and plant the CORN eighteen inches to two feet in the drill. Frequent use of the cultivator or light sweep, to stir the surface of the soil, will promote rapid growth and full earing, but all work should cease when the tassels appear.

For saving seed plant at a distance from all other varieties.

Several crops may be grown in one season, and but for the bud worm "all the year round," in some portions of the State. A simple remedy for this pest, and one that has been found very effectual, is to sprinkle warm sand in the bud. This operation is rather tedious, but can be afforded to secure a succession of "roasting ears," so universally popular as a table vegetable.

ANALYSIS.

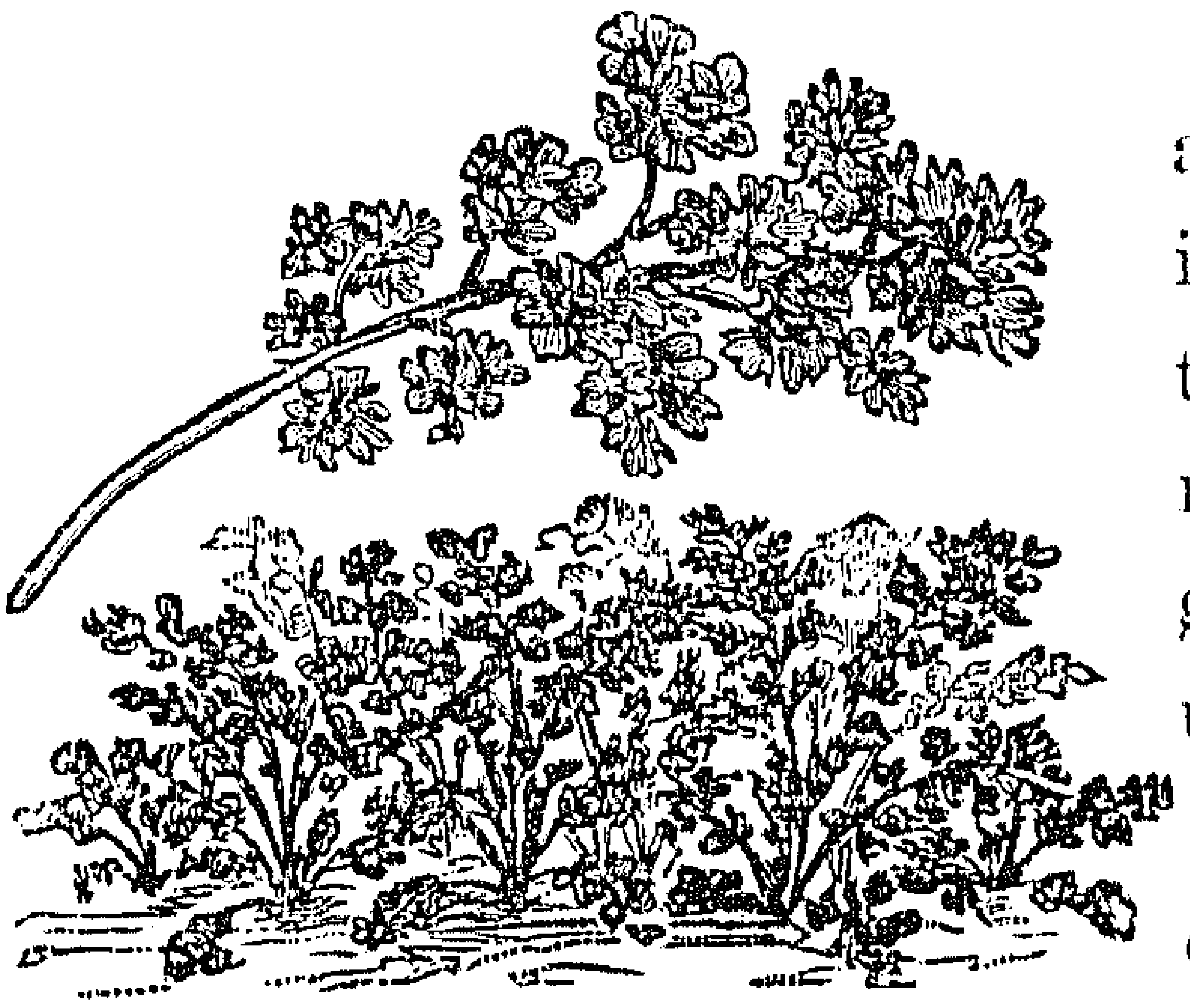
In 100,000 parts each of the grain and stalk subjected to analysis by Spengel, the following table shows the parts of inorganic constituents remaining after combustion:

	Grain.	Stalk.
Potash	200	189
Soda	250	4
Lime	35	652
Magnesia	128	236
Alumina	16	6
Oxide of Iron	trace	4
Oxide of Magnesia	—	20
Silica	434	2,708
Sulphuric Acid	17	106
Phosphoric Acid	224	54
Chlorine	8	6
Amounting in all to	1,312	3,985

parts respectively,

CRESS---Garden.

Lepidium Sativum.



Cress or Pepper Grass, although generally cultivated in England, and to some extent in the Northern States, is rarely found in any Southern garden; and in this State is unknown as a garden plant.

It is a hardy annual, brought originally from the East, and is said to have been introduced into England about the middle of the Sixteenth Century.

There are three kinds of Garden Cress, commonly designated as the Curled, Normandy, and Broad Leaved, the latter is coarse and inferior.

It grows wild in this State, and is plentifully found in moist, rich ground in the spring of the year. For garden culture similar soil should be provided, and for summer use a shaded spot should be selected as it soon dies out when exposed to the hot sun.

Cress may be grown all winter, for which purpose the seed should be sown in October, in a rich, damp border, in drills about six inches apart; water freely in dry weather.

It is chiefly used for seasoning lettuce and other salads, the tender leaves imparting a warm, pungent and, to some tastes, very agreeable flavor.

Cress is also employed in garnishing.

CUCUMBER.

Cucumis Sativus.

This vegetable is extensively grown in Florida for the early markets in the chief Northern, Eastern and Western cities of the United States. Early shipments are also made to the cities of our sister State, Georgia.

A great deal of money is realized every year by its production, and some lost, too, from indifferent culture and careless gardening.

ANALYSIS.

Potassa	47.42
Lime	6.31
Magnesia	4.28
Sulphuric Acid	4.60
Silicic Acid	7.12
Phosphoric Acid	14.97
Phosphate of Iron	2.06
Chloride of Potassium	4.19
Chloride of Sodium	9.08

Which shows that ashes, bone dust, salt and sand are important fertilizers to be used in the production of this vegetable. So, also, is stable manure, and Peruvian Guano mixed with gypsum in the proportion of one part guano to two of gypsum.

The CUCUMBER will grow on almost any rich soil, but does best on a dark sandy loam, moist and mellow, with southern exposure, and protected on the northwest by a sheet of water.

The very best variety to grow for market is IMPROVED WHITE SPINE.

GREEN PROLIFIC is probably the best for pickling, on account of its productiveness and uniform size.

LONG GREEN is preferred by some for the table, but they are not to be relied upon for a general crop like WHITE SPINE. One pound of seed will plant an acre in the hill. It is best, however, to be provided for replanting.

The ground for CUCUMBERS should be laid off in rows four feet apart, and if for market, the seed should be dropped along in the drill every two inches, to insure a perfect stand. After the rough leaves appear, they are thinned to a stand by leaving one plant every six or eight inches. This mode of planting has been found to afford the largest yield in a given time.

Fresh stable manure is apt to fire the young plants, and should be avoided.

The high prices paid for very early CUCUMBERS will induce a more general system of forcing. Glass is considered rather expensive by Florida gardeners.

A cheap mode of forcing is by means of common gourds. Saw these in half, then enough of the bottom to make a hole two or three inches in diameter. Fill these half gourds chiefly with old decayed manure, pressing the earth firmly, and plant the seed three weeks earlier than danger from frosts will permit in the open air. They may be protected by having them convenient to a shed, and taking them in cold nights. When all danger from frost has passed, open a hole in the hill large enough to receive the gourd, and plant out altogether. The roots will readily make their way through the hole in the bottom.

If gourds cannot be obtained, paper collar boxes or rolls of pasteboard tacked with a needle and thread will answer. Watermelons may be forced in the same way. An acre properly fertilized and cultivated will produce about four hundred bushels of CUCUMBERS. The average net returns for the season of 1880, for the market gardeners of Florida, was about one dollar per bushel crate.

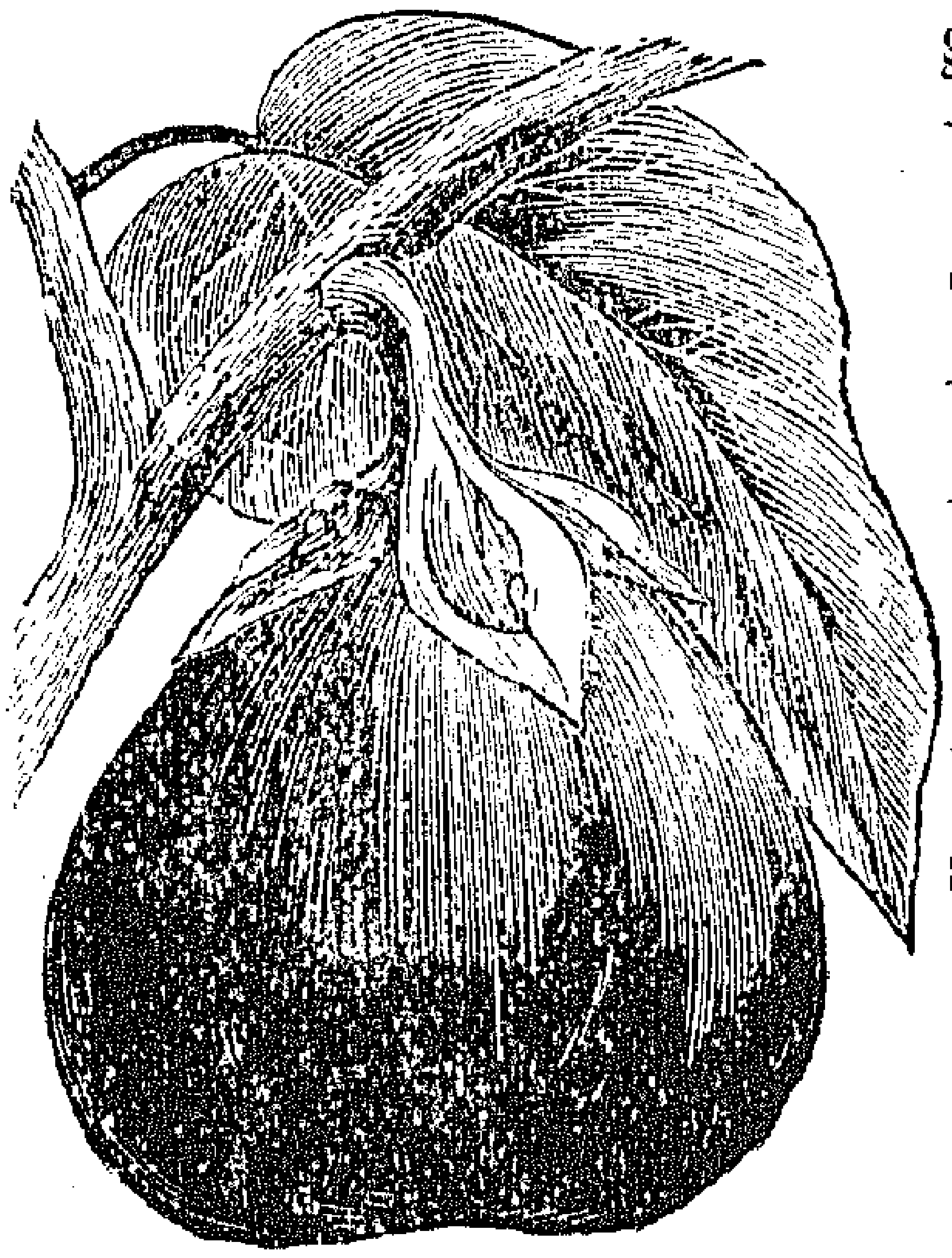
The establishment of fast trains, with well ventilated cars, thereby opening to us the great, thriving cities of the Northwest, will materially increase the returns of this and other garden products.

The necessity of hot beds, or cold frames, "under glass culture," is becoming more apparent each year to those engaged in growing CUCUMBERS for market *above "the line of injurious frosts."*

EGG PLANT.

Solanum Melongena.

This plant—also called GUINEA SQUASH, from its African origin—is a tender plant and a slow grower. In the absence of



glass, the seed should be planted in boxes the latter part of January, and conveniently situated for exposing to the sun and protecting from cold winds and cold rains, as well as frosts.

It is increasing in popular favor every year; and, having already been successfully grown for Northern markets, may very properly be classed among the profitable vegetables of Florida gardens.

ANALYSIS.

Carbonic Acid	.2889
Silicic Acid	.1038
Sulphuric Acid	.2898
Phosphoric Acid	1.7595
Peroxide of Iron	1.7595
Lime	.0046
Magnesia	.0828
Potash	1.2496
Soda	1.2595
Sodium	.0686
Chlorine	.1057
Organic Acids	.1341

The soil for this vegetable must be of great fertility and thoroughly prepared by deep plowing or spading.

Vegetable matter composted with stable manure and cotton seed, bone phosphate, bone flour, cotton seed cake mixed with gypsum, hard wood ashes, are good fertilizers, the quantity to be determined by the quality of the land. Remember not to mix lime or ashes with stable, or any other strong smelling, ammoniacal substance, without dry soil, gypsum, or other absorbent surrounding the mixture, to prevent the escape of valuable gaseous constituents.

NEW YORK IMPROVED seems to be the most popular market variety, and is large and productive, of a pale purple color, nearly spherical in shape, with sharp spines on the stalk and leaves.

The BLACK PEKIN.—This is rather a new variety, about the same size and shape as the preceding, but of a dark, polished, glossy exterior, presenting a handsome appearance. With us it proved quite as early and as productive as the New York Improved.

SCARLET FRUITED—Grown more for ornament than culinary use, of a deep scarlet color and about the size of a goose egg.

WHITE FRUITED differs from the preceding only in color.

In the Northern part of the State glass, for forcing this vegetable, is indispensable. It cannot be grown in the open air with any certainty of realizing good prices. There is no product cultivated for distant markets more easily affected by cold. It is often so stunted by cold winds, even where thoroughly sheltered from frosts, as to require the work of sowing to be repeated. In extreme Southern Florida the crop is sent to market a month or more before that of Northern Florida, and commands about double the price.

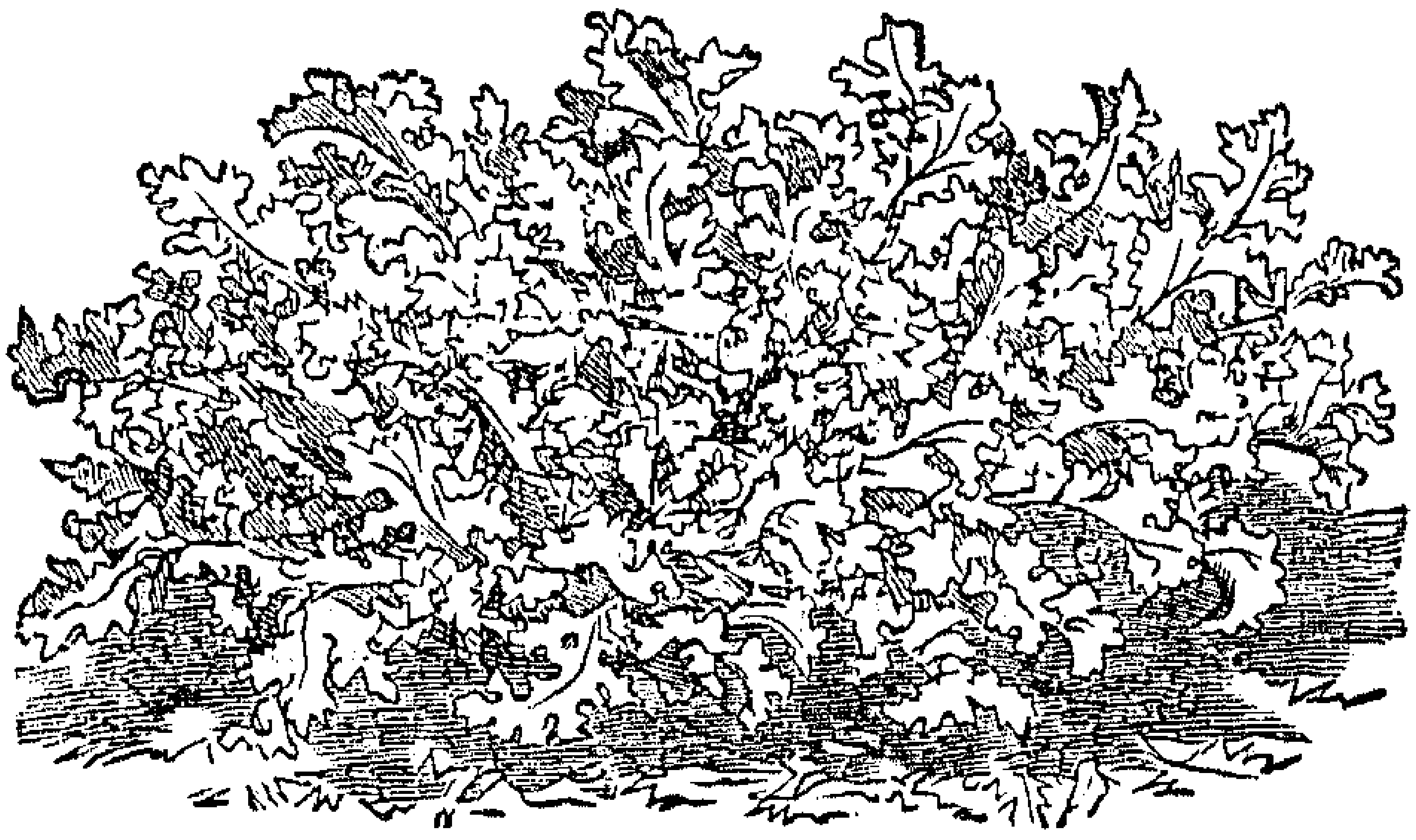
When the plants are ready to be transferred to the bed or field treat them as directed for Cabbage plants, and plant in checks three feet each way, which gives 4840 plants to the acre.

One ounce of seed will produce 1000 plants, but to allow for casualties, half a pound should be provided for each acre.

In gathering, clip the stems with pruning shears, wrap each EGG in paper the same as tomatoes, and in packing in barrels place the stem end down, over the interstices, to avoid bruising.

ENDIVE.

Chicorium Endivia.



This plant is a native of the East—China probably. In its natural state it is bitter and disagreeable to the taste; but by etiolation—blanching—is converted into a palatable salad. Served in that form, and also boiled or stewed it is a favorite with most Europeans. Away from the large cities and centers of foreign travel and immigration, it is scarcely known at all in the United States as a garden vegetable.

ENDIVE requires a very rich soil, light and deep. If practicable it is better to sow the seed where the plants are to grow, say in checks about fifteen inches each way—as they are not easily transplanted.

Sow the seed the latter part of October, dropping a few in a place at distances as above given. And when five or six inches high thin out to one plant. The surplus plants may be used for extending the bed if desired.

In about three months from the time of sowing the seed, the plants will be ready for blanching. There are several methods for accomplishing this, but the most effectual is as follows: Fold the leaves around the heart as much in the order of natural growth as possible, and after binding with a shred of bass matting, heap up the earth—sand or ashes would be better—around in a conical form, and leave the surface compact and smooth to shed excessive rainfall as in Celery.

A simpler way, and the one practised in India, is merely to tie the leaves around the heart in the shape of a cone as already described, using for the bandage the leaf fibre of a plantain or banana in lieu of bass. A second ligature may become necessary to keep the heart leaves from bursting out.

VARIETIES.

The two varieties in use are:

GREEN CURLED, which besides being the most hardy, makes a crisp tender salad; and on account of its attractive appearance is used in garniture.

BROAD LEAVED BATAVIAN is the kind which is blanched by the second method given. It has large, loose growing heads preferred in soups and stews.

GARLIC.

Allium Sativum.

The species of this vegetable cultivated in this country, and known as ENGLISH GARLIC, is a native of Sicily. It is a very hardy plant, and will grow with little cultivation, other than keeping free from grass and weeds.

From the following analysis of the bulb, it would seem to require a soil abounding in potash and phosphate of lime, which wood ashes and bone meal will afford:

ANALYSIS.

Soluble matter,	
Carbonic Acid	12.17
Sulphuric Acid	4.82
Phosphoric Acid	2 18
Potassa	35.13
Soda	trace
Chloride of Sodium	2.75
Insoluble matter,	
Carbonate of Lime	5.74
Carbonate of Magnesia	6.89
Phosphate of Lime	30.09
Phosphate of Magnesia	trace
Phosphate of Iron	trace
Silica	0.22

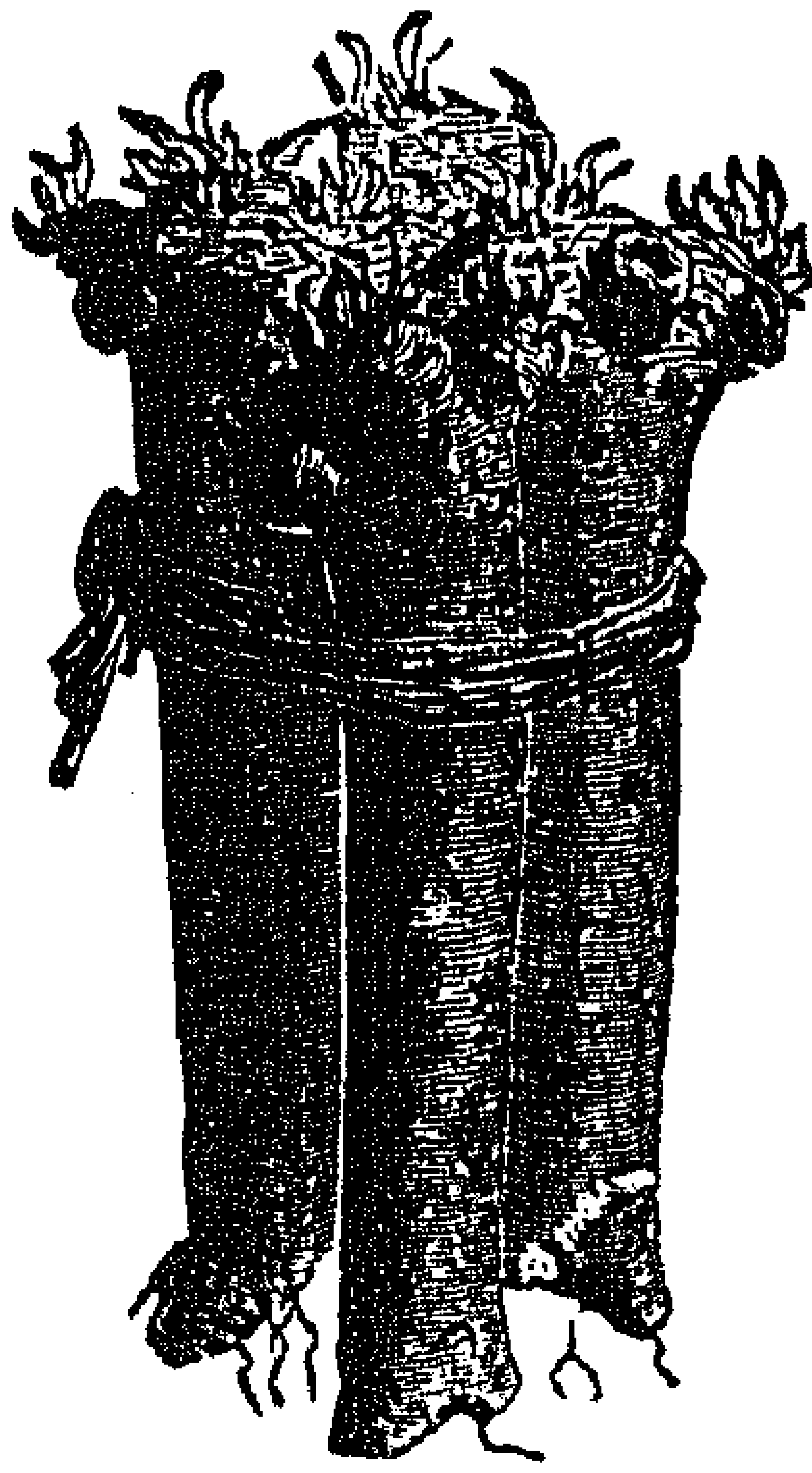
The ground should be prepared as for Onions, with three or four rows eighteen inches apart, and then a space for a walk. Around each bulb are six or eight smaller bulbs, called *cloves*, which are used in propagating. Plant these two inches apart in the drill early in October. As soon as the leaves wither and turn yellow, the crop may be gathered. Do not allow the stalks to go to seed; every effort to do so must be prevented by breaking down the seed-stalk.

Except, perhaps, for medicinal purposes, Americans have little use for GARLIC.

HORSE RADISH.

Cochlearia or Nasturtium Armoracia.

This vegetable is profitably grown by gardeners in the vicinity of New York City, and, doubtless, in many other places; but mostly as a second crop. It is cultivated in connection with early cabbage or beets.



The land must be exceedingly rich naturally, or made so by liberal and long-continued fertilizing. It thrives best on moist land. Where all the conditions of growth are favorable, five tons is the estimated yield per acre, which has sold for the handsome price of $200 per ton.

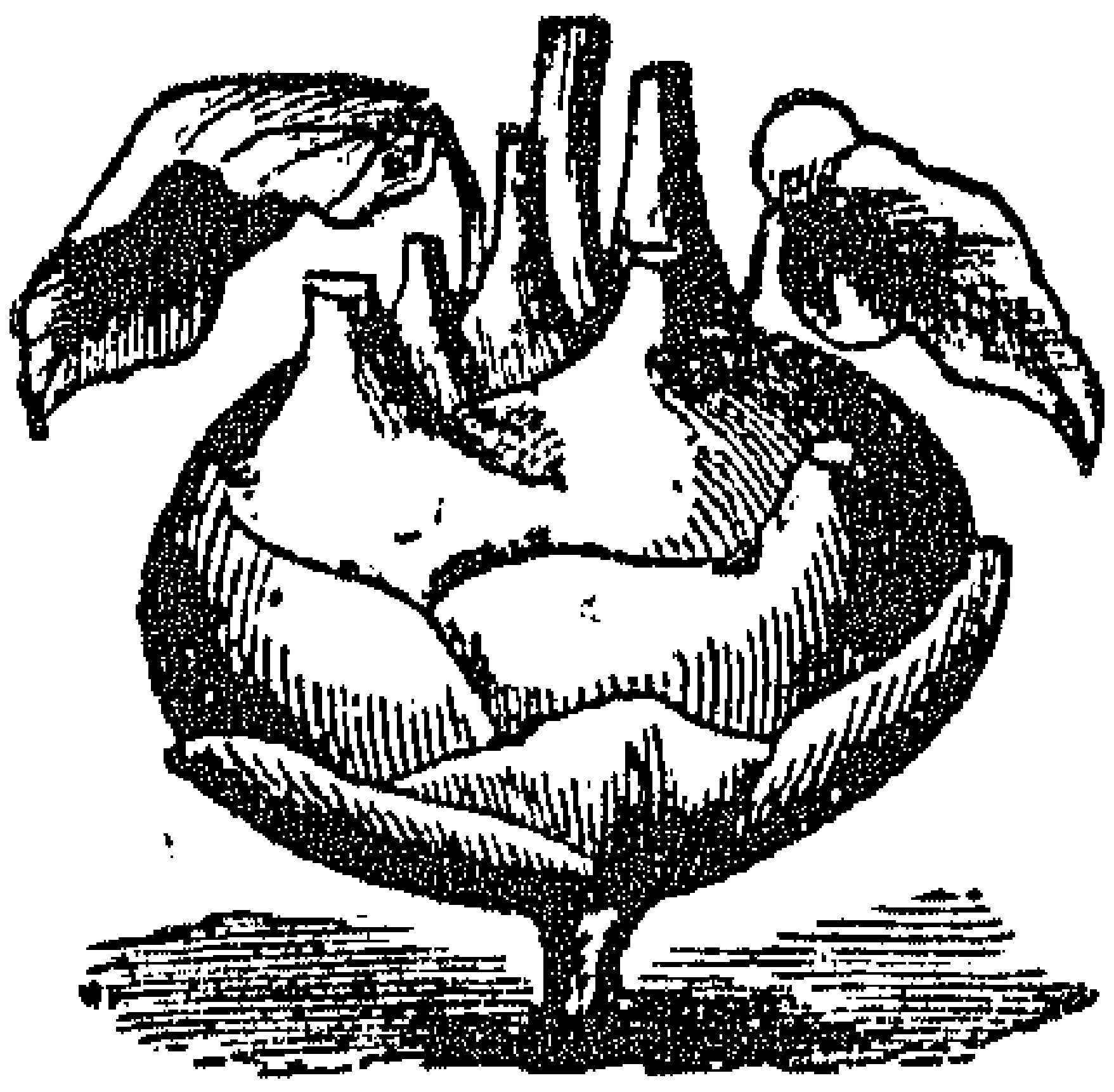
It is propagated by rootlets from the main root or marketable portion. These rootlets are cut into pieces five or six inches long and stuck in a hole made for the purpose by a sharpened stick in rows two feet apart and about sixteen inches in the drill. Be careful to press the earth firmly around. Where it is to share the plat with some other vegetable, Cabbage, for instance, the top of the plant is pushed down two inches below the surface, to retard its growth, so as to allow the cabbage crop to be harvested before the HORSE RADISH gets a start. Its growth is very rapid, and it soon gains the ascendency over every thing else.

It may be planted any time in the fall. Small roots for planting cost about one dollar per hundred ; freights to be added.

As a condiment it is much esteemed by many, and thought to be useful in promoting digestion.

KOHL-RABI.

Brassica Oleracea var: caulo-rapa.



This vegetable, also known as Turnip-rooted Cabbage, is a curious combination of turnip and cabbage. In appearance it inclines to the turnip, and may be treated in a similar way.

Sow the seeds in drills eighteen inches apart, and thin out to ten inches in the drill. The seed are sometimes sown on beds like cabbages, but as the plants are not easily transplanted, experienced gardeners usually sow in the permanent bed, preferring the increased cost of seed to the risk of removal.

Two pounds of seed will plant an acre, where the seed bed and transplanting method is adopted; but it is not likely that this vegetable will ever be grown on any such scale in this State. A single paper will, doubtless, furnish plants enough to satisfy the claims of variety and novelty.

LEEK.

Allium Porrum.

This vegetable has never been grown in this State for distant markets; but reduced freights may cause it to be entered on the list of such products. At any rate, as it is much esteemed by some persons, a few words respecting its culture, &c., will not be amiss.

ANALYSIS.

	BULB.	STEM.
Potassa	32.35	32.98
Soda	8.04	14.43
Lime	12.66	25.10
Magnesia	2.70	trace.
Sulphuric Acid	8.34	16.50
Silicic Acid	3.04	19.77
Phosphoric Acid	15.09	
Phosphate of Lime	13.29	10.06
Chloride of Sodium	4.49	trace.

The Leek requires very rich soil, and it must be thoroughly broken up and pulverized by harrowing. The best fertilizers are ashes, ground bones, or bone flour, gypsum, and old stable manure. The seed-beds should be prepared similar to those for cabbages, etc., about four feet wide: make the drills an inch deep and six or eight inches apart. Keep the beds free of grass and weeds, and when the plants are six inches high, transplant to the permanent beds.

These beds should also be narrow. Lay off rows about ten to tweve inches apart, and set the plants ten inches from each other in the drills. To facilitate the transplanting make the holes previously with a dibbler and let them be deep enough to receive the stems nearly up to the leaves. This will blanch the stems—making them more tender and better flavored. It is a mistake to grow them without transplanting. It increases the size.

To increase the size of the neck, the tops should be cut two or three times during the growing season—about once a month. Use water copiously in transplanting, and in very dry weather.

Large American Flag is said to be the best market variety.

They are put up for market in bunches of six to eight, having previously cut off the top ten or twelve inches above the root, and clipped the remaining leaves.

The number of plants grown on an acre is estimated to be 85,000, or about 1,000 bunches.

Last of September is a good time to sow the seed, by which LEEKS are solely propagated.

LETTUCE.

Lactuca Sativa.

The Florida market gardener does not grow this plant, except for his own use, unless his location near a large town affords him a home market. Even then, except on a small scale, its profitableness is questionable. Although it is so easily and extensively cultivated, the inferior quality of by far the greater part offered for sale is a matter of surprise. The bunches, (rarely the heads) commonly sold in our market, could not be disposed of in New York at remunerative prices were the transportation free. There are of course exceptions to this. As fine LETTUCE can be grown in our State as in any country. The fault is usually in sowing the seed too thick, and thinning them out only as they are consumed, which results in compelling the plants to do most of their growing in an overcrowded state. When quite young, they should be transferred to where they are to head and given a space of one foot each way. Or drop a few seed in checks the above distance apart, and thin out to one plant as soon as it may be safely done.

GREEN FRINGED is specially recommended for its ornamental appearance.

Black Seeded Simpson is a new and very choice variety.

All the Year Round is a hardy, compact and valuable kind, producing hard but not very large heads.

ANALYSIS.

Potassa	22.37
Soda	18.50
Lime	10.43
Magnesia	5.68
Sesquioxide of Iron	2.82
Sesquioxide of Manganese	trace
Sulphuric Acid	3.85
Silicic Acid	11.86
Phosphoric Acid	3.39
Chloride of Sodium	15.09

A sandy loam, richly supplied with well decayed stable manure, lime and salt is just the soil this vegetable prefers.

Lettuce may be planted at almost any time of the year in this climate; but in hot weather it must be sheltered from the sun at midday. Plants which are suffered to remain on the seed-bed make finer and earlier heads than transplants. Hence the importance, when practicable, of sowing the seed where the plants are to grow.

MELON---MUSK; CANTATOUPE.

Cucumis Melo.

ANALYSIS.

Carbonic Acid	11.55
Silicic Acid	2.20
Phosphoric Acid	25.40
Sulphuric Acid	3.90
Phosphate of Iron	2.30

Lime	5.85
Magnesia	0.60
Potash	8.35
Soda	34.35
Chlorine	5.20

The soil, fertilizers and culture of this crop are similar to the requirements of the Watermelon. Less potash or ashes, and more bone dust, are indicated by the analysis. Common salt, applied broadcast and plowed in, would be advantageous both to this and the Watermelon.

About five feet each way is a good distance for the hills. To insure a stand, plant eight or ten seed, finally removing all but three plants.

The small and medium sized netted varieties are best.

MELON---WATER.

Citrullus Vulgaris.

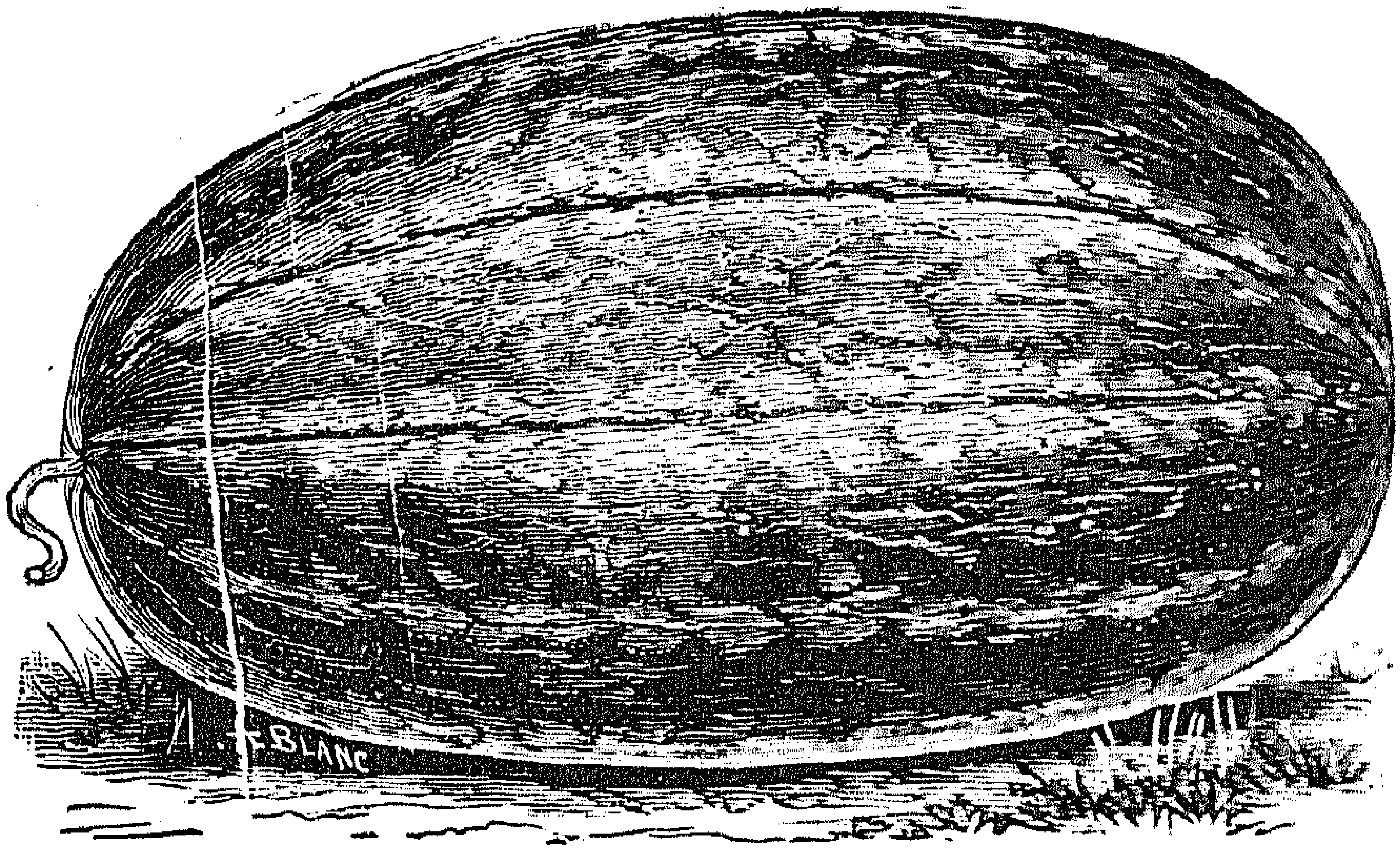
ANALYSIS.

Carbonic Acid	11.42
Silicic Acid	1.21
Phosphoric Acid	14.93
Sulphuric Acid	1.63
Phosphate of Iron	4.52
Lime	7.32
Magnesia	1.31
Potash	23.95
Soda	30.63
Chlorine	1.81

Per cent. of Water 94.898.

This is a valuable crop to the market gardeners of Florida, and with more care in the selection of seed, preparation, and cultivation of the ground, may be made one of great profit. Almost every one has a theory of his own for producing this fruit: and the success generally attending the efforts of the various producers is proof of its easy culture.

A light sandy loam is the best soil, and ashes and bone flour, together with a liberal supply of stable manure, or a compost of stable manure and cotton seed applied in the hill, will furnish the plants with necessary food.



SCALY BARK MELON.

The region of country about Augusta, Georgia, has for a great many years been noted for the superior WATERMELONS produced there. Poor pine hills, with scarcely enough fertility to bring five bushels of corn to the acre. The fact of the excellence of sandy land for growing this crop is confirmed by universal experience.

It is best also to use new land, and to avoid planting the same field more than two years in succession when practicable. In planting new ground in WATERMELONS, the vigor and luxuriance of the vines close to where a log heap was burned is very apparent. Hence, a liberal supply of ashes is very desirable.

Ten feet each way is the usual distance of planting, but eight by ten has been adopted with good success. Only the early melons are marketable; a greater number of which will be given by the closer distance, besides covering the ground sooner and saving work. Over-fruiting may be corrected by pinching off all over three or four to the vine.

After the ground has been well broken up and laid off, holes three and a half feet in diameter and two feet deep should be dug, and filled with manures mixed with the top soil even with the surface, except in land where the water is liable to stand awhile after heavy rains. In that case make the hills two or three inches above the surface of the ground.

The plan suggested for forcing Cucumbers may be successfully used with WATERMELONS.

Open air planting may be begun in January in many parts of the State.

One object in having large hills is to give a large planting surface directly over the manure. Continue planting the same hills every week until all danger of frosts is past. By which a week's time may be saved at a season when it is of great value.

Thin out to two or three plants to a hill.

The vines should under no circumstances be moved. Pin them to the ground with forked sticks, or by throwing a spadeful of earth on them, to prevent their being blown about by the wind.

Two light ploughings and one hoeing will generally make the crop. If practicable let the last ploughing be at right angles to the first.

It is best to plant but one variety of seed, and in making the selection do not choose one with a very thin rind; it will be much more liable to injury in transporting to distant markets.

The first large, well developed melon should be saved for seed. If this is done every season for several years, those very desirable qualities, *earliness* and *size,* will be surprisingly improved.

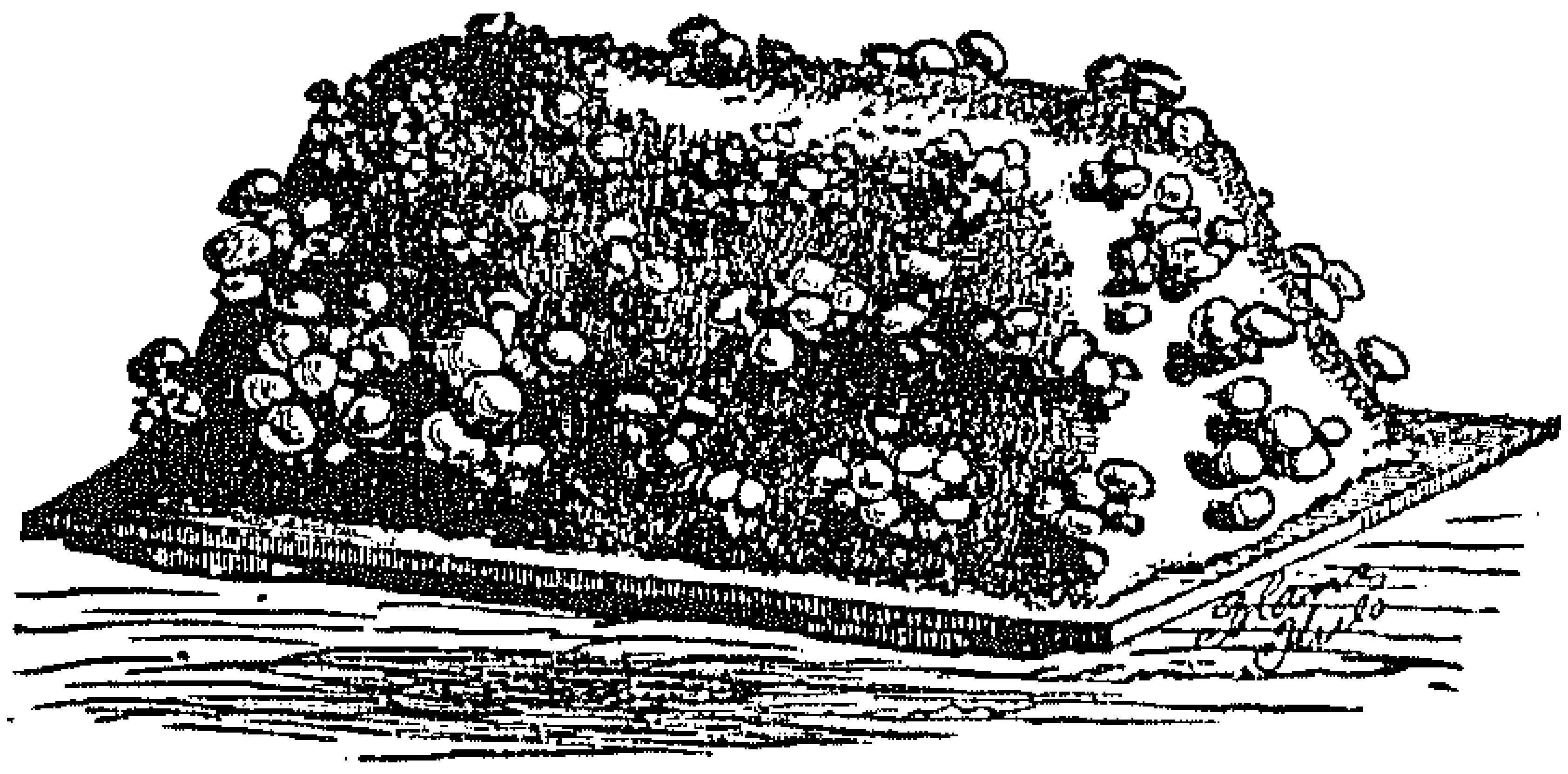
Plant your choice seed in the same field with the general crop. WATERMELONS will "mix" inside of one hundred yards, the pollen being carried by bees. Hence the importance of keeping different kinds of melons, also gourd and pumpkin vines, at a safe distance.

The subject of improving seed is worthy of attention. A good plan would be to prepare a place every year large enough for experimenting, and looking to continued improvement.

VARIETIES: For several years what is known as the "RATTLESNAKE" MELON—white, with broad green stripes—has been advertised and extensively cultivated at the South as the leading market variety. This distinction it has never deserved. Its want of uniformity in quality, in the same field, and under precisely similar methods of culture, has often been remarked in certain sections. Perhaps the "SCALY BARK" is the peer, if not the superior of the new aspirants for popular favor. Its table excellencies are only equalled by its shipping qualities. A single melon is said to have sustained the concentrated pressure of one thousand two hundred and fifty pounds without apparent injury. A severe test, considering its remarkably thin rind.

MUSHROOM.

Agaricus, Campestris.



This fungus is esteemed by every one with any pretension to epicurean delicacy. Yet it is shunned by many, who might soon learn to love it, for fear of confounding the edible, and innoxious, with the poisonous.

The vegetable MUSHROOM, according to Loudon, "springs up in open pastures in August and September.

"It is most readily distinguished when of middle size by its pink, or flesh-colored, gills and pleasant smell. In a more advanced stage the gills become of a chocolate color, and then it is more apt to be confounded with other kinds of dubious quality. But the species which most nearly resembles it is slimy to the touch, having a rather disagreeable smell; further, the noxious kind grows in woods, or in the margin of woods; while the true MUSHROOM springs up chiefly in open pastures, and should be gathered only in such places."

Dr. Christison gives the following directions for distinguishing the *Esculent* from the poisonous kinds:

"It appears that most fungi which have a warty cap, more especially fragments of membrane adhering to their upper surface, are poisonous. Heavy fungi, which have an unpleasant odor, especially if they emerge from a vulva or bag, are also generally hurtful. Those which grow in woods and shady places, are rarely esculent, but most are unwholesome; and if they are moist on the surface, they should be avoided. All those which grow in tufts or clusters from the stumps of trees ought likewise to be shunned. A sure test of a poisonous fungus is an astringent styptic taste, and perhaps also a disagreeable, but certainly a pungent odor. Those, the substance of which becomes blue soon after being cut, are invariably poisonous."

Agarics of an orange, or rose-red color, and boleti, which are coriaceous or corky in texture, or which have a membranous collar round the stem, are also unsafe. These rules for knowing deleterious fungi seem to rest on fact and experience; but they will not enable the collector to recognize every poisonous species.

A simple and reliable test is to insert a *silver* spoon or *silver* coin into the vessel in which MUSHROOMS are boiling, and if on taking either out they assume a blueish-black or dark-discolored appearance, throw them away, there is "death in the pot," but if, on the other hand, the metal retains its natural appearance, they may be regarded as wholsesome and eaten with impunity.

This curious vegetable is one of the connecting links between the animal and vegetable kingdoms. It does not produce seed, but may be propagated by a white fibrous substance in broken threads, called spawn; and this spawn may be preserved for years in horse manure, formed first into a sort of mortar with garden mold, and pressed into brick. The process is thus described, and it may be remarked that if the lovers of this esculent would confine their use to the kind thus produced, there would be no startling announcements of fatal consequences from eating the wrong variety:

"Take a quantity of fresh manure from high-fed horses, mixed with short litter; add one-third cow's dung, and a good portion of loamy mould; incorporate them thoroughly, mixing them with the drainings of a dung heap, and beat them until the whole becomes the consistency of thick mortar. Spread the mixture on the level floor of an open shed, and beat it flat with a spade; when it becomes dried to the proper consistency, cut it into bricks about eight inches square; set them on edge, and turn frequently until half dry; then dibble two holes about half through each brick, and when perfectly dry insert in each hole a piece of good spawn; then somewhere under cover place a bottom of dry horse dung six inches thick, and place the bricks, spawn side up, one upon another; the pile may be made three feet high; cover it with warm horse dung sufficient to diffuse a gentle glow of heat through the whole; the heat should not be over seventy degrees, and the pile should be examined the second day to see that it does not overheat; when the spawn is diffused entirely through the bricks, the process is finished. The bricks should then be laid separately in a dry place, and, if kept *perfectly dry*, will retain their vegetative power for many years. One bushel of spawn will plant a bed four feet by twelve."

"Beds for MUSHROOMS may be made anywhere in a dry situation under cover. Make them four feet wide and from ten to fifteen feet long, according to the wants of the family. A small shed might be erected for the purpose, but the back of a greenhouse is a very good situation, as they do not need much light.

* * *"

"A sufficient quantity of the droppings of horses, pretty free from litter, must be obtained, which, while collecting, must be kept dry, and spread out thinly, and turned frequently to prevent violent heating. When the rank steam has escaped, the bed may be built. The site should be dry. Dig out the earth six inches deep the size of the bed, and if good lay it aside for use. Fill this trench with good fresh dung for the bottom, and lay on this the prepared dung, until the whole is six inches thick above the surface; beat it down firmly with the back of the fork, and build up the sides with a slight, but regular slope. Let the bed slope downwards towards the walk; lay over it three inches of good clayey loam; place another layer ten or twelve inches thick of prepared dung, and in the same manner continue until the bed is two and a half or three feet thick. Cover the bed with clean litter to prevent drying and the escape of the gasses, and let it remain ten days, or until the temperature becomes mild and regular; about sixty degrees, and certainly not less than fifty degrees, is the proper degree of warmth."

If the manure has a brown color, and is so loose and mellow that when pressed it will yield no water, but has a fat unctuous feel, without any smell of fresh dung, the bed is in a right state. If it is dry and hard, or sloppy and liquid, it is not in the proper condition. In the first case, moderate watering may restore it; but in the latter, the superabundance of water will probably spoil it, and it is better to commence anew. When the bed is ready, break the bricks of spawn into lumps the size of a walnut, which plant regularly six inches apart over the surface of the bed, including its sides and ends, just beneath the surface of the manure. Level the surface by gently smoothing with the back of the spade. Fine, rich loam, rather light than otherwise, is then put on two inches thick. Lastly, a covering of straw from six to twelve inches, according to the temperature. If the bed gets too hot take of most of the covering. When the bed appears dry, sprinkle it gently with soft tepid water in the morning. The water should be poured through the nose of a watering pot upon a layer of straw laid on for the purpose, and when the earth becomes a little moistened, the straw should be removed, and the dry covering replaced. In warm weather it will need frequent sprinkling, but in winter very little.

"In four or five weeks after spawning the bed should begin to produce, and if kept dry and warm will last several months. A gathering may take place two or three times a week, according to the productiveness. If it should not come in two or three months, a little more warmth, or a sprinkling of water will generally bring it into plentiful bearing, unless the spawn has been destroyed by over-heating or too much moisture. In gathering detach them with a gentle twist, and fill the cavity with mould; do not use a knife, as the stumps left in the ground become the nurseries of maggots, which are liable to infest the succeeding crop. Gather before they become flat, when half an inch or more in diameter, while compact and firm."

MUSHROOMS are used in various ways, boiled, stewed or broiled, in catsups, pickles, and made into rich sauces.

To Stew: "Cut off the part of the stem that grows in the earth; wash carefully, and take off the skin from the top; place in a stew-pan with salt, without water; stew slowly, shaking the pan occasionally until tender; then thicken with a spoonful of browned flour, and one of butter; add spices and wine if preferred."

And to *Broil:* "Prepare as above, and lay on a small gridiron over bright coals, stalk uppermost; broil quickly, and season with butter, salt and pepper."

MUSTARD.

Sinapis.

There are two species of MUSTARD usually cultivated, S. ALBA and S. NIGRA. The former kind is used for early salads, but both in the *manufacture* of MUSTARD.

The soil for MUSTARD should be rich, and well pulverized, a sandy loam with moisture is preferred. White MUSTARD may be sown almost any time during the cool months; for salad the leaves must be used before they become rough; after that stage they are only fit for greens.

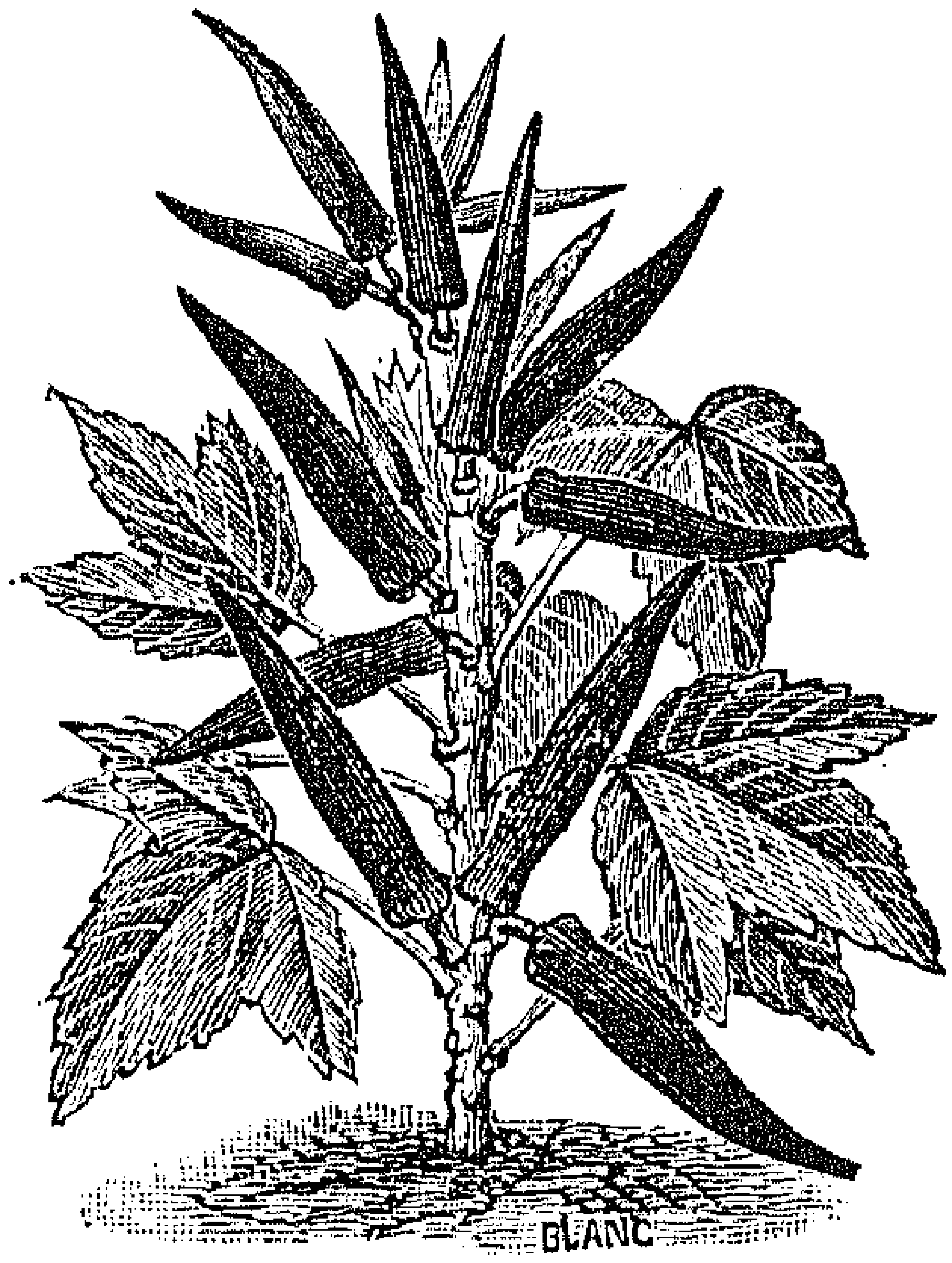
Sow thickly in drills eighteen to twenty inches apart, and gradually thin out to eight inches in the drill.

In this State, where there are so many vegetables far superior to this for salad or greens, its cultivation is presumably for the table condiment, made therefrom, or the flour, which is largely used in every family. The flour made of the BLACK MUSTARD is most esteemed. It is ground in an ordinary spice mill, or crushed by a roller on a table. The superiority of FRENCH MUSTARD is due to their not separating the husk after grinding, as is done in this country. This imparts to the flour a brownish color, but it is more powerful, besides being more palatable.

OKRA.

Hibiscus Esculentus.

This vegetable is pretty generally conceded to be a native of the West Indies, yet there are a few who persist in assigning it to East India.



DWARF OKRA.

Be that as it may, what we are more interested in knowing is, that, while for a long time, the taste for, as well as the cultivation of this grand old soup vegetable was restricted to the latitude of the cotton plant ; it is becoming every year more poupular with our friends of the North, West and East, as they become better acquainted with it.

It has for several seasons been included among the marketable vegetables of Florida, and with good results.

The time for planting, distance, etc., except where forcing is contemplated, is very much the same as for cotton.

There are two varieties, Giant and Dwarf. The latter is preferred by most cultivators. Plant rows three and a half feet apart and thin to two feet in the row. Let the land be moderately rich, and be sure to gather the pods as they reach the proper size, whether used or not. If they are permittted to remain on the stalk it will seriously interrupt continuous bearing.

ONION.

Allium Cepa.

ANALYSIS.

Potash	29.21
Soda	9.41
Lime	11.43

Magnesia	2.44
Phosphate of Iron	12.00
Phosphoric Acid	13.62
Sulphuric Acid	7.53
Chlorine	2.46
Silicic Acid	2.76
Sand-Charcoal	4.75
Carbonic Acid	4.33

Northern market gardeners regard this as one of their most profitable crops, but sell it chiefly in its green or unripe state; and there is no reason why our own gardeners should not profit by the hint, and supply Northern markets with fresh green ONIONS at a season when only they could do it.

The ONION grown for the mature bulb is a profitable crop in Florida whenever the conditions of soil are properly complied with. Failures, when they do occur, are mainly due to insufficient fertilizing. The ground must be made exceedingly rich. Seventy-five tons of "short, well-rotted manure" is used by those who succeed best. Ashes and ground bone, or, rather, bone flour, in sufficient quantities, may be used to advantage—not less than 1,000 to 1,500 pounds bone flour per acre scattered broadcast and plowed in.

Deep plowing and thorough pulverization are indispensable, whatever implements are employed to effect it.

ONIONS are grown best here from the seed. Sets from the previous year do not succeed well; even if they did, the labor and expense of a biennial crop would exclude it from the list of profitable vegetables.

It is best to divide up the plot of ground which has been prepared for ONIONS into beds three to four feet wide, and leave a narrow walk between. On these beds, mark off shallow drills about ten inches apart, in which drop the seed an inch or two apart, and cover with finely pulverized soil, completing the operation with a garden roller to press the earth compactly about them. A "seed drill," which every market gardener should have, will do this job more expeditiously, economically and effectually than it is possible to do it by hand. If a seed drill is used, four pounds of seed will be sufficient to plant an acre, but it will require more to sow them by hand.

The seed should be sown the 1st of September, and the plants will be ready to set out the 1st of December, or earlier.

Have the rows, as before mentioned, ten inches apart, and set the plants eight to ten inches from each other.

If the beds are laid off exactly three and one-half feet wide, the drills ten inches apart and six inches from the walk to the first drill, there will be four rows on a bed, and if the sets are placed nine inches from each other in the drill, there will be sixteen plants to every three linear feet of bed, or five and one-third plants to one foot of bed. Allowing eighteen inches for the width of the walks between the beds, an acre of ground laid off in this way would give 46,464 plants or sets to the acre; from which any one can make an approximate estimate of the yield per acre.

As a general rule the white or silver skinned varieties succeed best. An exception to this rule, however, must be made in favor of the GIANT ROCCA, a magnificent *brown* skinned kind lately introduced from Naples. It is globular in shape, large in size, mild and of very agreeable flavor.

NEW QUEEN, is of medium size, *white* skinned, a rapid grower, and keeps well.

NEW NEAPOLITAN MARZAJOLA: a white skinned Italian variety, claimed to be the earliest ONION in cultivation, excepting, perhaps THE BERMUDA, a large, flat, white skinned ONION, grown on the Island of Bermuda for the New York market. It has been successfully cultivated in several sections of this State, particularly in Orange county.

The difficulty until recently of procuring reliable seed has been a bar to more extensive culture of this popular ONION.

Aware of the wide spread interest in BERMUDA ONION growing in Florida, Judge J. Wofford Tucker, of Sanford, kindly consented to prepare the subjoined treatise on the subject.

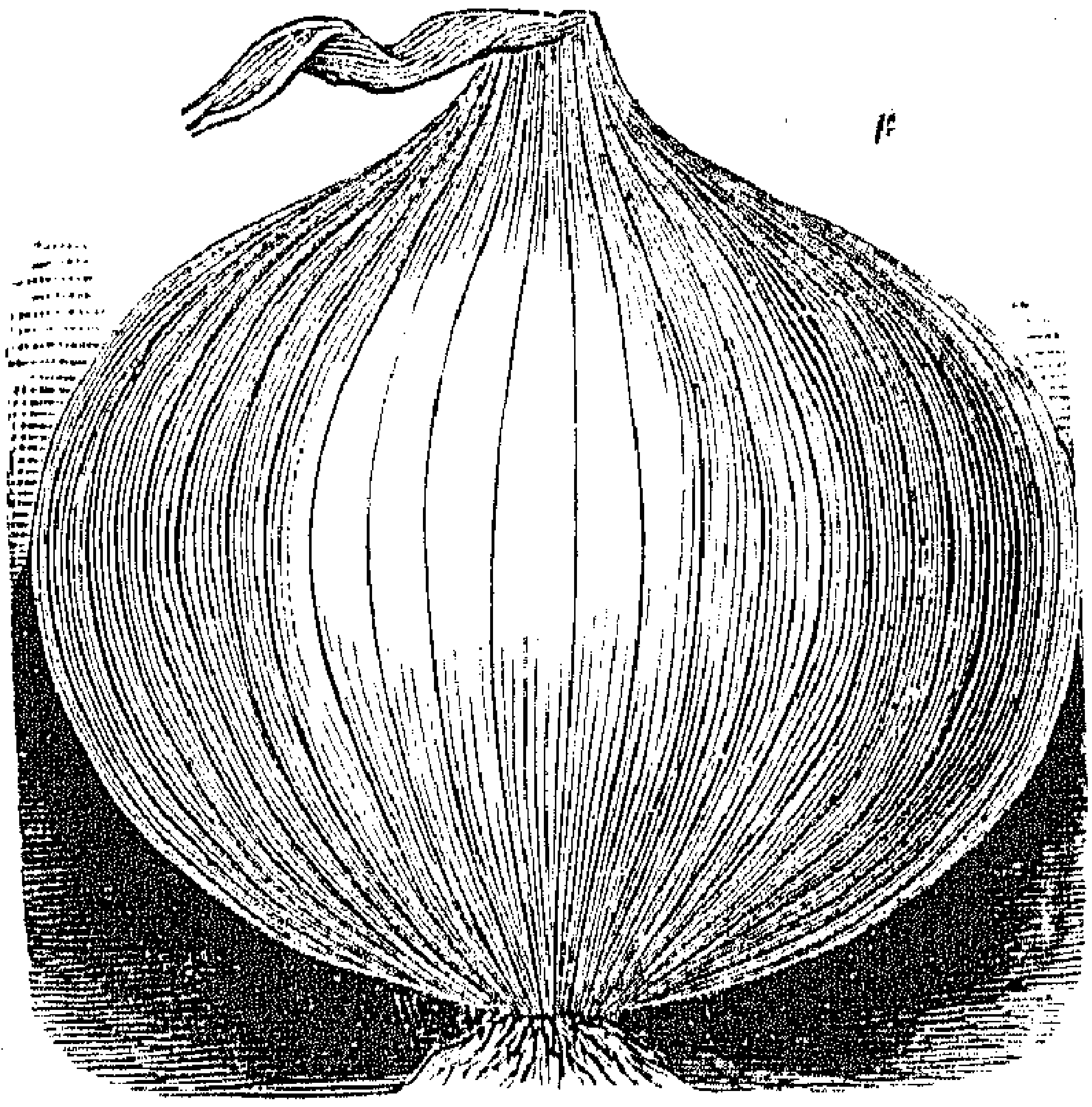
No citizen of Florida need be told that Judge Tucker is an interesting writer. His residence of several years in Bermuda afforded him ample opportunity to collect facts, difficult if not impossible to obtain in any other way; and he has in his usual comprehensive style and felicitous expression, recorded them for the benefit of all Floridians in general, and Florida gardeners in particular.

Cultivation of the Bermuda Onion.

BY JUDGE J. W. TUCKER, OF SANFORD, FLORIDA.

Of all the ONION family, that which is known as the BERMUDA is the most esteemed for its mildness of flavor, its size, beauty, shipping qualities, and early development. So much is this variety valued, and so difficult has it been to obtain genuine seed, that several spurious varieties have been offered and, to some extent, sold in the Southern market.

At the solicitation of the market gardeners of this section, I have perfected arrangements for procuring an early supply of the genuine seed, through an old and reliable London mercantile firm.



WHITE BERMUDA ONION.

Having had opportunities, through several years of residence in Bermuda, to observe the method of culture there of this important vegetable, and having observed repeated experiments made in Florida, which have proved very successful, I submit with great confidence these specifications:

1. Sow any time from the first of October to the first of February, the earlier period for the earlier spring harvests. It is entirely practicable to have a succession of crops.

2. Prepare the seed-beds by deep and careful culture and fertilization. Any good fertilizer which would be suitable for any other seed-bed will do for these; well-rotted stable compost is excellent. If Guano or other highly concentrated manure be used, it ought to be well incorporated with the soil a month before sowing. Sow in drills as thinly as practicable. Sow after a rain, or sow, and then water of evenings. If the weather is hot and dry, shade partially the tender germs as they spring, for a week or two.

The plants are very hardy after getting a start. It is not easy to produce an onion crop without onion plants; hence a little care at this point pays well. Keep out the weeds and grass, and when the plants grow to the size of a goose quill, they are ready to transplant.

When the plants are drawn out to re-set, *pinch off the roots* and set the bulb; this is done very rapidly; then press the bulb into soft, well-prepared soil, to the depth of half an inch or little more, in drills ten or twelve inches apart in the drill.

Prepare beds for the plants very much like the seed-beds, and put four rows on a bed of five feet width, with a foot path between the beds, and *never tread on the beds.* Keep out the weeds and grass, but *do not cut down in the soil with a hoe.*

The young roots permeate the beds, and to cut them is to inflict a great injury. If sown in October, with good culture, the crop ought to be ready for marketing by or before the first of May.

HARVESTING.

Select the best grown ONIONS and draw them out, leaving the others to develop. Let the ONION, top and all, remain exposed to the sun for one or two days. The substance in the top will be absorbed by the bulb, and increase its weight and plumpness. Then with a sharp knife cut off the wilted top, but do not bruise the bulb. *Be sure to pack dry.* Do not let the ONIONS get wet. Smaller packages sell better than barrels. Gather and ship as the ONIONS become matured. Nothing is gained by putting on the market half-grown, ill-looking produce.

After the ONION seems fully grown, it will bear to be left in the beds—the grass being kept under—for *four* to *six weeks.* The top will disappear, and the bulb will be sound, full, plump, and beautifully rounded. The gardener can thus supply, without glutting the market.

The Bermuda growers will supply New York probably as early as we could put ours into that market, but the South and West will furnish a market that our Southern gardeners can have all to themselves.

As to profit, it may be remarked that from one to two dollars per bushel can be usually obtained; and Mr. J. W. Willington, near Sanford, produced this season over one thousand bushels to the acre. But this must be regarded as an exceptionally large yield. From four to six hundred bushels per acre will be a good return.

This slip is cut from the correspondence of the *Times-Union* of a recent date: "I send you to-day an ONION grown by Mr. George A. Kirk, of West Apopka, which weighed when pulled from the ground four pounds. It was grown on Kirk's 'Belle-Isle,' in Lake Apopka, from Bermuda seed. This ONION you will find is rank only in growth. You will find it as 'sweet as a peach,' fully equal, if not excelling, the famous (imported) Bermuda. He has bushels, barrels, boxes of them that will average as large as a tea saucer."

The ONION crop comes in opportunely. It is certain cash, at a fair, remunerating price. It can be grown in the South, and put in the market six weeks earlier than the ONION grown North. It ought to become a staple garden crop with us in Florida and other Southern States.

PARSNIP.

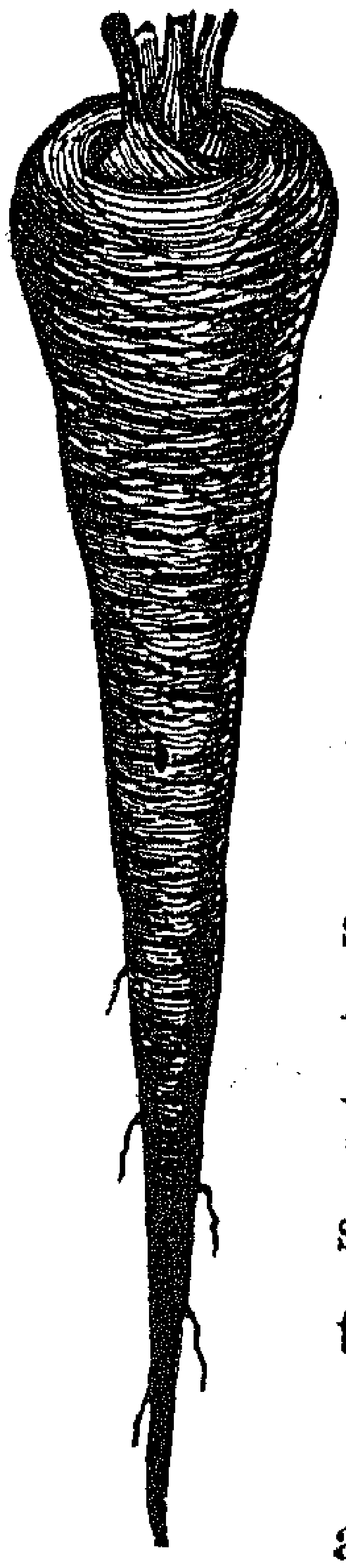
Pastinacea Sativa.

ANALYSIS.

Potassa	36.12

Soda	3.11
Lime	11.43
Magnesia	9.94
Sesquioxide of Manganese	0.89
Sulphuric Acid	6.50
Silicic Acid	4.10
Phosphoric Acid	18.16
Phosphate of Iron	3.71
Chloride of Sodium	5.54

A deep sandy loam enriched with ashes, ground bones and salt is best for this vegetable.



The PARSNIP, a hardy biennial, is a native of Sardinia, cultivated extensively in Europe and in the Northern States. At the South it is little used, and not often seen, although it possesses no little nutriment, and makes a valuable stock feed, especially for milch cows.

It is said to contain poisonous properties in its wild state, which are entirely removed by cultivation. The two kinds may be easily distinguished from each other by the leaves. In the garden variety the leaves are smooth and of a light green color, while in the wild they are dark green and hairy.

Sow the seed in January in drills eighteen inches apart, and thin out slowly to eight inches in the row. The root is white, in other respects it is similar to the Carrot, with which the culture and general treatment is identical.

HOLLOW CROWN is probably the best variety.

PARSLEY.

Petroselinum Sativum.

This is another of the hardy biennial plants indigenous to the South of Europe.

It is not likely in this State to be grown for market, and a sufficient supply for family use may be cultivated along the borders of the beds, which they will tend to embellish.

Sow the seed about the first to the middle of October, either in a seed-bed or where they are to grow. Give the plants one and a half by three-quarters feet distance in the permanent bed. The seed germinates slowly, frequently requiring six weeks from the date of planting before they appear.

This vegetable does not do best in very rich soil; the ordinary garden soil will be found quite rich enough, but it is important that it should be deeply broken up and thoroughly pulverized.

PARSLEY is chiefly used for garnishing other dishes, and for imparting an agreeable flavor to stews and soups, for both of which it is admirably adapted.

CARTER'S FERN LEAVED is a new and most beautiful variety.

FINE TRIPLE CURLED, a choice curled variety, and MYATT'S GARNISHING, also a curled variety, and generally preferred to the preceding.

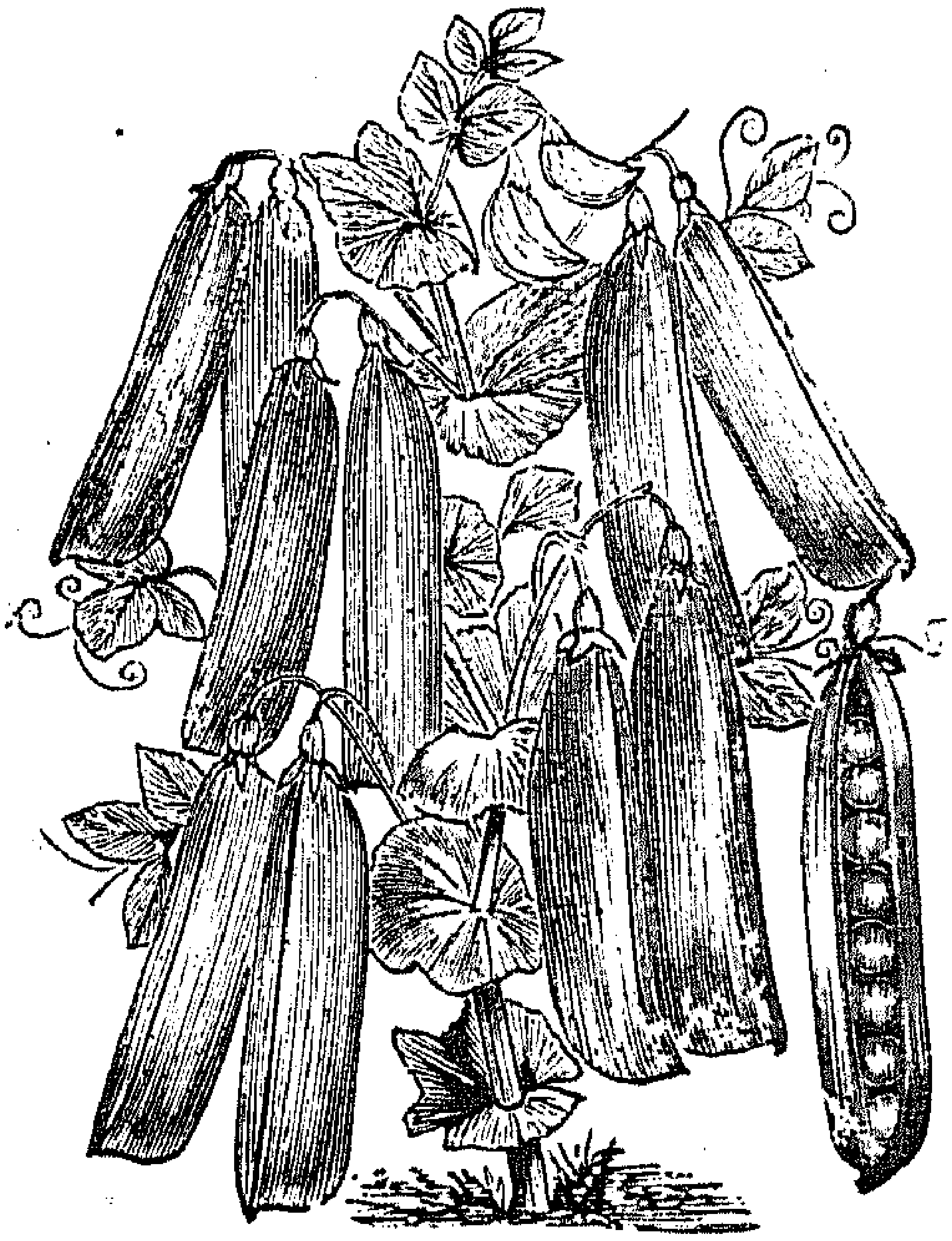
PEA.

Pisum Sativum.

ANALYSIS.

	SEED.	STRAW.
Potassa	40.70	23.30
Soda		1.50
Lime	2.21	19.20

Magnesia	7.03	3.90
Sulphuric Acid	4.17	6.60
Sillicic Acid		7.50
Carbonic Acid		5.20
Phosphoric Acid	44.42	6.90
Chlorine		13.46
Phosphate of Iron	1.47	1.40
Sand		3.80


THE M'NEILL PEA.

This vegetable is highly esteemed by some of our market gardeners for early shipments to markets north of us. It succeeds best in the northern portions of the State. On the Peninsula, other standard vegetables are so much more profitable, that this receives but little attention.

The above analysis shows that the "seed"—pea, contains over 85 per cent. of potassa and phosphoric acid combined; while the aggregate amount of potassa, lime, chlorine and silicic acid is more than 73 per cent. By which we are directed to select a soil abounding with these constituents, or to apply them in the most convenient form. Some sand, it will be observed, is indispensable to form the stalk; ashes or kainit will give the potassa; bone meal or bone flour the phosphoric acid and lime, and common salt the chlorine.

These ingredients composted with a fair proportion of good stable manure to supply ammonia, together with fresh woods soil and gypsum to act as absorbents, will, after being thoroughly mixed, constitute one of the very best fertilizers that can be used for peas, and it will possess the important qualities of cheapness and safety. It may be applied liberally without fear of firing. The precise amount of each constituent mentioned that should be used in making the compost, cannot be determined in advance of a knowledge of the land; and consequently must be left to the intelligent observation of the cultivator.

Every farmer who may be able to collect old or fresh bones, can by the formula elsewhere given in this book, readily prepare them for his own use.

A large per cent. of the failures in the cultivation of this vegetable, especially when grown for market, may be attributed to insufficient and unsuitable manuring, and it is high time to make a change in this respect, for with proper attention and duly considering our climatic advantages, early PEAS should *equal* if not *surpass* any other crop in point of profit.

One strong recommendation in favor of PEA culture, is the earliness with which the market gardener begins to realize the reward of his labor and skill. Another is that he has a highly enriched piece of ground—supposing he has done his duty in preparation as advised—on which to grow a second profitable market crop. Egg plants, for instance, which had been coming on under glass, or otherwise suitably protected, might form the succeeding crop. Fresh animal manures unless in compost with muck, wood's mold or gypsum should be rejected as too heating.

Where the PEA crop is to be immediately followed by another, the fertilizer should be broad-cast and in no stinted measure. But otherwise the manure may be strewn in the drill, which should be made deep for the purpose, so that the peas may have an even covering of two to three inches of soil.

My experience is, the PEA succeeds best in soils containing a large per cent. of clay. And this doubtless furnishes *one* reason for the general want of success attending their cultivation in the southern counties where clay is " out of reach."

Of varieties, there are legions, and most growers have their favorites.

EARLY DWARF VARIETIES.

FERRY'S FIRST AND BEST: Is an excellent early sort, of uniform ripening. The vine does not grow more than eighteen inches in height, but is an abundant bearer, and will mature all its pods, it is claimed in forty-five days.

BLISS' AMERICAN WONDER: Is also an early and prolific bearing PEA. The chief objection to which is its diminutive size, not as tall as the preceding by one half.

In addition to the above may be mentioned MCLEAN'S LITTLE GEM, fifteen inches high; CARTER'S LITTLE WONDER, twenty to twenty-four inches high; MCLEAN'S ADVANCER, twenty-four to thirty inches high—all wrinkled.

SECOND EARLY VARIETIES.

PRIZE-TAKER GREEN MARROW: Highly esteemed as a market PEA.

FILL BASKET: An excellent dwarf.

LATER, FOR HOME USE.

VEITCH'S PERFECTION: A good bearer and well flavored; four feet.

CHAMPION OF ENGLAND: A very popular standard variety, which grows to five feet on good land.

The Early Dwarf Wrinkled Sugar is a French variety with edible pods, which are prepared somewhat like snap beans.

There is a Pea known in Columbia, Bradford, Suwanee, Gadsden and other counties of this State as the McNeill Pea, which is perhaps *the very best* to raise for market. It came originally from one of the dwarf varieties. It is more prolific, less dependent upon artificial support, and, on account of its branching habit, may have more distance in the drill, thereby requiring about fifty per cent. fewer seed.

From having been grown many years in this latitude, from home-saved seed, it matures somewhat later than formerly—of little consequence in a climate where gardeners can plant the Pea when they please.

POTATO---IRISH.

Solanum tuberosum.

This is a popular and very valuable vegetable to the market gardener of Florida. Large areas are annually planted, which command remunerative prices.

ANALYSIS.

Carbonic Acid	21.40
Sulphuric Acid	3.24
Phosphoric Acid	3.77
Potassa	55.61
Soda	trace
Chloride of Sodium	trace
Carbonate of Lime	3·02
Carbonate of Magnesia	1.26
Sulphate of Lime	0.12

Phosphate of Lime	3.83
Phosphate of Magnesia	7.55
Basic Phosphate of Sesquioxide of Iron	0.06
Silicic	0.12

There is no doubt that the flavor and productiveness of the POTATO are greatly affected by the character of the soil. For repeated experiments have shown that while one kind of soil would produce tubers having a strong, disagreeable taste, another kind would bring them possessing quite the opposite qualities. Hence, the importance of selecting or forming a soil that is best adapted for developing the good qualities. In "heavy wet soils, or rank black loam," although the tubers may be large and numerous they are rarely ever palatable.

The very best soil is one made rich by previous fertilizing—where some other crop had grown. Fresh manures have a tendency to fire the vine, and induce rot in the tuber. Barnyard manure should be old and well decayed, and freely mixed with leaf mould, gypsum and salt. Ashes, or something to furnish potash should be liberally supplied. Oyster shell lime may be used to decided advantage. Ground bones, or rather bone flour is an excellent and also a safe fertilizer for this vegetable. In clay soils the land should be subsoiled, as the feeding roots under favorable conditions go down two feet or more in quest of food and moisture. A successful cultivator says: "As the potato is a root that sends out fibres not only near the surface, but deeply, if possible, it can never produce such a crop as where the land is broken eighteen inches to two feet." And in addition to enhanced yield, there is another, and perhaps greater advantage to the market gardener secured by deep plowing, namely: increased earliness.

Broadcast manuring when practicable, is to be preferred in most crops, because it insures ample supplies of food convenient to the roots, and it facilitates crop-lapping or succession on the same ground. But it would manifestly be far better to apply the manure in the drill than to distribute an insufficient quantity over the whole field.

The question: "Whether whole tubers are better than cut," is still unsettled, and is likely to continue so. For market, cutting the larger into two or more pieces, and planting the smaller whole is generally adopted.

Some experimenters insist that large and early potatoes can be more reliably obtained by planting large size tubers from which all except one or two eyes have been removed. Another plan is to sprout them under straw. They should be exposed to light and sunshine in fair weather, and well protected at night and also during the day in cold weather with straw. As soon as green leaves are formed the whole set is planted out in the ground up to the leaves.

In the general crop—the subdivisions of the tuber will depend upon the size; there should be two eyes to allow for accidents, but not more.

If the manure is to be applied in the drill, I would suggest the following plan, having found it to work well. In the last plowing, let the land be broken up into beds as wide as the rows are to be apart, I prefer three feet. Into the water furrows thus made let another furrow be run to deepen it, and in the bottom of this drop the potatoes at intervals of ten inches. If commercial fertilizers are used, contact with the potato may he avoided by requiring the one who drops the seed to tip over a sufficient quantity of dirt to cover it, at the time it is deposited in the furrow. Immediately following this operation is the distribution of the fertilizer, either by hand or a machine for the purpose; after which the whole is covered by two narrow scooter furrows, one on each side of the row.

By this method the seed is deeply planted—a desirable object—the manure is on the same plane as the seed ready for instant use, and the shallow covering at first permits the heat of the sun to penetrate to the seed and encourage early and vigorous growth. As soon as the plants show well above the ground, take two more furrows from the middles for their support. And ten days later the remainder of the middles may be broken out with turn plow, which, if the previous work in the way of preparation has been thoroughly done, will comprise all the cultivation required, with perhaps once passing through the alleys with a cultivator. Though I have made good crops in which this last operation was omitted, and the use of the hoe alogether dispensed with. As a general rule, however, the cultivator may be profitably employed several times during the growth of the crop in keeping the surface soil open and porous, as well as to free it from continuous crops of grass and weeds in their embryo state—ready to spring forth after every shower of rain.

The operation of "cutting up" potatoes for seed should be performed at least a week before planting, and the cut side immediately sprinkled or rubbed over with gypsum (land plaster) or, if that is not at hand, then hardwood ashes. By this means the wound will cicatrize sooner, and stop the loss from "bleeding." The size of the tuber is said to be increased by pinching off the flower buds as they appear; but it is exceedingly questionable whether the author himself of the suggestion ever took the trouble to utilize his discovery to any great extent.

The maturity of the tuber is usually indicated by the dying out of the tops or vines. Then comes gathering and shipping. The loss occasioned by carelessness in digging is very heavy ; for a slight wound consigns an otherwise *choice* potato to a *second*, or perhaps *third* class package. Yet it is impossible to convince the average laborer of the disastrous effect of even a puncture from his rake or prong hoe. An implement that would lift the potatoes from their bed, and leave them with intact coats on the surface and fully exposed to view, would speedily enrich the inventor. The plow should do all the work of digging, and the ground subsequently gone carefully over with the rake or prong hoe. As fast as dug the potatoes should be conveyed to the barn or shed and spread out to dry. They are then assorted, divided into at least three shipping grades, forcibly packed into second hand potato barrels or new ones if to be had, of the same dimensions, and the heads securely fastened and held in place by nailing the head hoops all around. Plenty of holes for ventilation should be made. Imperfectly filled packages has been frequently assigned as the cause of unsatisfactory sales. Hence every effort must be made to get them full enough to allow for some shrinkage. Have the barrels repeatedly shaken while filling, and the standard of measure such a height as to require the weight of a man to press the head into the chine grooves.

In assorting, let the invariable rule be perfect uniformity in the package as to size, color and general condition. Avoid the mistake of trying to improve the price of a lot of inferior potatoes by mixing a few CHOICE with them. Half a barrel of No.

1 mixed with a like quantity of No. 3, will not command the price of a barrel of 2's—the natural average. It will bring no more than if the barrel had been filled with 3's at first. Such experiments only entail loss upon the producer, and are not apt to be repeated by the same individuals.

As to variety, it is difficult to advise. CHILI RED, or GARNET CHILI is the kind grown on the Island of Bermuda for the early Northern market. It is also preferred by some of our own market gardeners.

POTATO---SWEET.

Convolvulus batatas.

ANALYSIS.

Starch	184.23
Albumen	54.47
Coagulable Albumen	19.40
Caseine	9.70
Sugar and Extract	53.49
Dextrine and Gum	6.93
Fibre	17.09
Gum Resin	2.07
Water	641.72
Silicic Acid	0.24
Sulphuric Acid	0.16
Phosphates of Lime and Magnesia	2.78
Lime	0.08
Magnesia	0.07
Potash	6.30
Soda	0.66
Chlorine	.54

Starch is a compound of 42.8 carbon; 6.35 hydrogen, and 50.85 oxygen in 100 parts—100 parts of albumen is composed of a fraction over 52.8 of carbon; 23.8 of oxygen; 7.5 of hydrogen, and 15.7 of azote, or nitrogen. Caseine is the basis of cheese. Dextrine is the gummy matter into which the interior substance of starch globules is converted.

This vegetable is introduced only for the purpose of showing its constituent parts; which will be found of interest, notwithstanding the fact that the humblest colored farmer in the State would consider himself insulted were it even hinted that he could be instructed in the culture of this staff of his life. It may be well to state that the Seminole Indians cultivate a variety of SWEET POTATO of great excellence, which should be extended over the State.

Within the last two or three years, our truck gardeners have realized in some instances handsome returns from the shipment of SWEET POTATOES to Northern markets. Successful experiments have been made with the NANSEMOND POTATO, the favorite with Northern consumers, but which we think inferior to several Southern varieties.

To make SWEET POTATO raising profitable, arrangements must be made for getting sprouts or slips from tubers early enough to plant out in the open air as soon as the danger of frosts is passed.

Ridges are thrown up four feet apart, and the slips cut into lengths of fifteen to twenty inches, and dropped at intervals of ten to twelve inches, are caught in the middle with a stick having a notch or fork above the end, and pushed down five or six inches into the ridge. Do this after a rain.

RADISH.

Raphanus Sativus.

ANALYSIS.

	ROOT.	LEAVES.
Potassa	21.16	5.05
Soda	——	11.09
Lime	8.78	27.90
Magnesia	3.53	7.08
Sulphuric Acid	7.71	9.64
Silicic Acid	8.17	8.22
Phosphoric Acid	40.09	6.07
Phosphate of Lime	2.19	16.45
Chloride of Potassium	1.29	——
Chloride of Sodium	7.07	8.50

THE RADISH does best on sandy soil on which some other crop has grown or which has been previously enriched. Ground bones, ashes, and salt will supply the special manures. It does not require the ground to be as rich as many other vegetables. If too rich, much of its substance is wasted in forming fibrous roots.

This is an important garden product at the North; but it is grown with Cabbages, Cauliflowers, etc. Planted between the rows of even the earliest of these vegetables, it comes off in so short a time, as not to be in the way at all. The mildness of our climate would allow of its being grown throughout the winter season. So that it might be produced at any time to supply the Northern demand. So far as known it has not been cultivated to any extent for shipping purposes.

There are several varieties, both of the FUSIFORM or spindle shape, and TURNIP ROOT.

The LONG SCARLET SHORT TOP is very generally grown as a market variety.

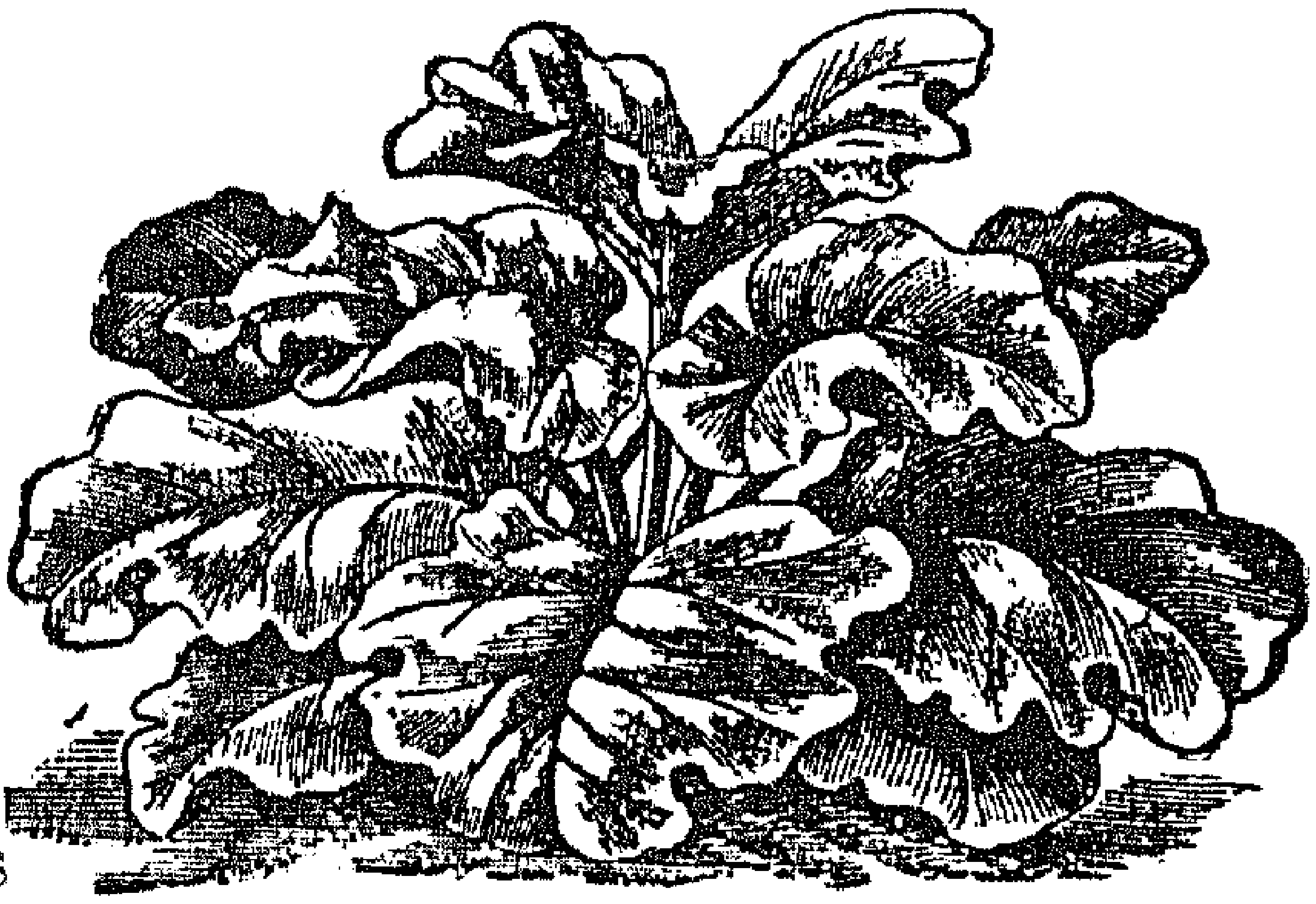
Scarlet Turnip and White Tipped Scarlet Turnip, are also good varieties.

Yellow Summer Turnip. A good variety for summer.

One ounce of seed will plant one hundred feet of drill.

RHUBARB.

Rheum Rhaponticum.



This species of Rhubarb in common with all others is a hardy perennial plant, and since its introduction into England more than three hundred years ago, has continued to increase in popular favor, for the many purposes in the household economy to which it it is adapted, but chiefly as a pie plant.

It is a native of Asia and Southern Russia, and the leaves were used at an early period of its cultivation, as a substitute for spinach.

The leaves are very large, supported by petioles—the parts used in cooking—which in the finer varieties are from one to two inches in diameter.

Rhubarb culture in the United States, although now numbering a good many years is almost exclusively confined to the Northern States.

The rapidly grown stalks contain but little woody fibre, and are readily cooked to a pulp, which, with sugar, is used for pies, tarts, etc. The acidity is due partly to oxalic, but more largely to malic acid, both acids being in combination with potash as acid-salts.

VARIETIES.

MYATT'S LINNÆUS is rated a superior variety, very early, of medium size, but tender and of excellent flavor.

BUIST'S EARLY RED: With stalks three feet long and quite early, is esteemed by some as better suited for our climate than most European varieties, on account of its standing the heat better.

ANALYSIS.

CONSTITUENTS.	ROOT.	LEAF-STALK.	LEAF-BLADE.
Silicic Acid	4.60	1.55	8.93
Phosphates	34.79	24.70	22.79
Lime	5.41	2.75	6.74
Magnesia	3.37	0.23	1.36
Potash	8.30	5.88	9.25
Soda	28.60	37.02	32.14
Sodium	0.17	1.83	2.48
Chlorine	0.26	2.80	3.78
Sulphuric Acid	5.96	5.87	5.02
Organic matter thrown down by Nitrate of Silver	8.49	17.37	7.51
	100.00	100.00	100.00

Showing that **RHUBARB** abounds in soda and the phosphates, and suggesting as specific manures, ground bones, guano (mixed with gypsum) and seaweed, if attainable, or, in its absence, crude soda.

The ground for it can hardly be made too rich, if moisture sufficient is also ensured. In our latitude it would be decidedly better to get roots from seedsmen, and after proper sub-division set them out in the fall in checks two and a half to three and a half feet each way. About two years from the root, or three years from the seed is the time required for it to reach maturity.

RHUBARB is not unfrequently raised in the gardens of Europe for ornament, and the general utility of its large handsome leaves.

"The finest species is said to be the Himalayan, discovered by Dr. J. D. Hooker, it forms a pyramid a yard and more high, the base of which is of shining green leaves, with red petioles and plumes, and the upper parts of delicate straw colored bracts with pink edges."

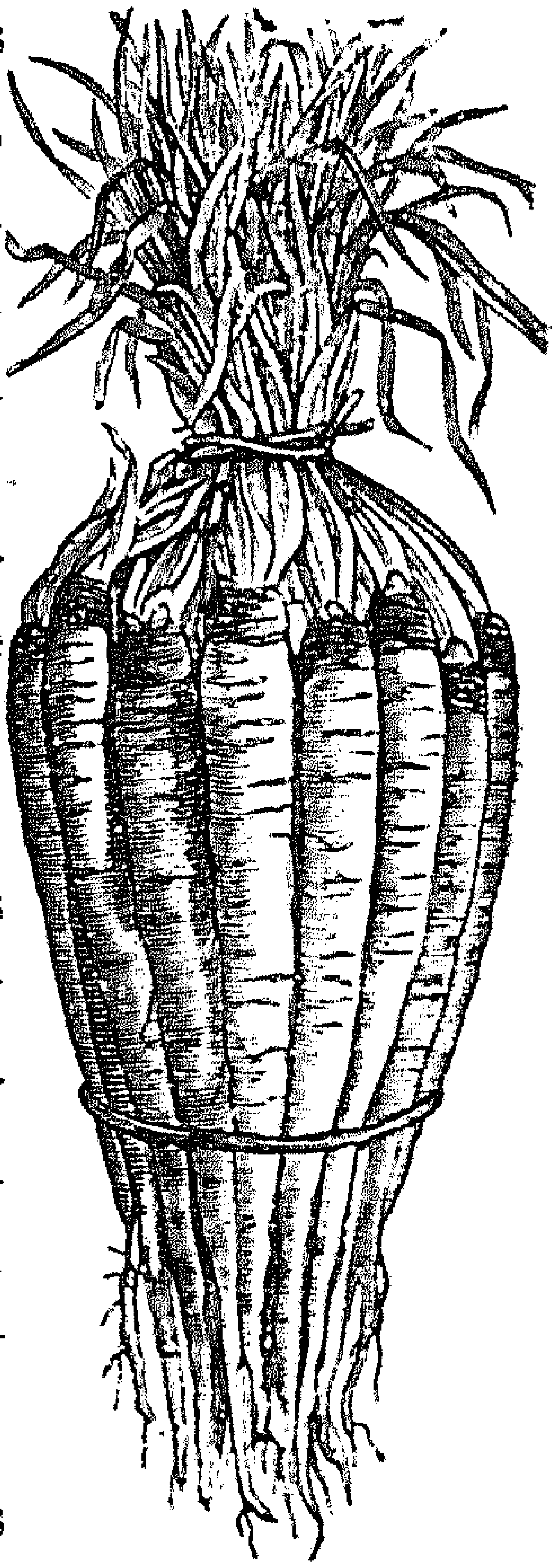
As a medicinal plant, RHUBARB was known to the Chinese world as claimed by a *Celestial* writer on herbs, as far back as to about 2,700 years before Christ, which was during the lifetime of Noah, probably while he was a spruce young man of only a century or two old.

SALSIFY.

Tragopogon porrifolius.

This plant is more commonly known in the country as VEGETABLE OYSTER, on account of the resemblance in flavor to the oyster. In this State it is little known, and rarely seen, yet from its remarkable hardiness it may be grown all through the winter with perfect safety.

The cultivation of SALSIFY is similar to that of the Carrot, and like that vegetable is largely used for flavoring soups. Its long tap root after being lightly scraped, is boiled, buttered, and served as Asparagus, for which it is a very acceptible substitute. For a mock oyster dish, the roots are cooked as above and then chopped up and seasoned with pepper, salt, vinegar, etc.



SALSIFY is not likely to be much in request for its oyster taste, in a section where that delicious bivalve is so superior and plentiful as in this State.

Like all tap-rooted plants, the soil for this vegetable should be very deep and mellow from liberal fertilizing. Sow the seed pretty thick in drills a foot apart, and when an inch or two high commence thining and continue until the young plants are finally left about six inches apart in the drill.

Plant so as to use before hot weather sets in.

SHALLOT, or ESCHALLOT.

Allium Ascalonicum.

A species of Onion which many prefer both for eating in its natural state, and for the various culinary purposes in which the Onion is employed. It seems rather anomalous, that, while it possesses a stronger flavor than the Onion it does not hold on to the palate with such pertinacity.

Each offset of the root will increase if planted in a similar manner as its parent.

The soil should be made light and friable, but need not be so rich as for the Onion proper, nor does the SHALOT like as much moisture. Throw the land into beds four feet wide, and mark the drills about twelve inches apart and one inch deep. Plant the sets or cloves about six inches asunder in the drill, leaving the apex of the clove just even with the ground. Do not draw the earth to the stalk as in Leek culture. The smallest offsets are preferred for the alleged reason that they will not mould in the ground.

The first of October is the best time for planting in this climate.

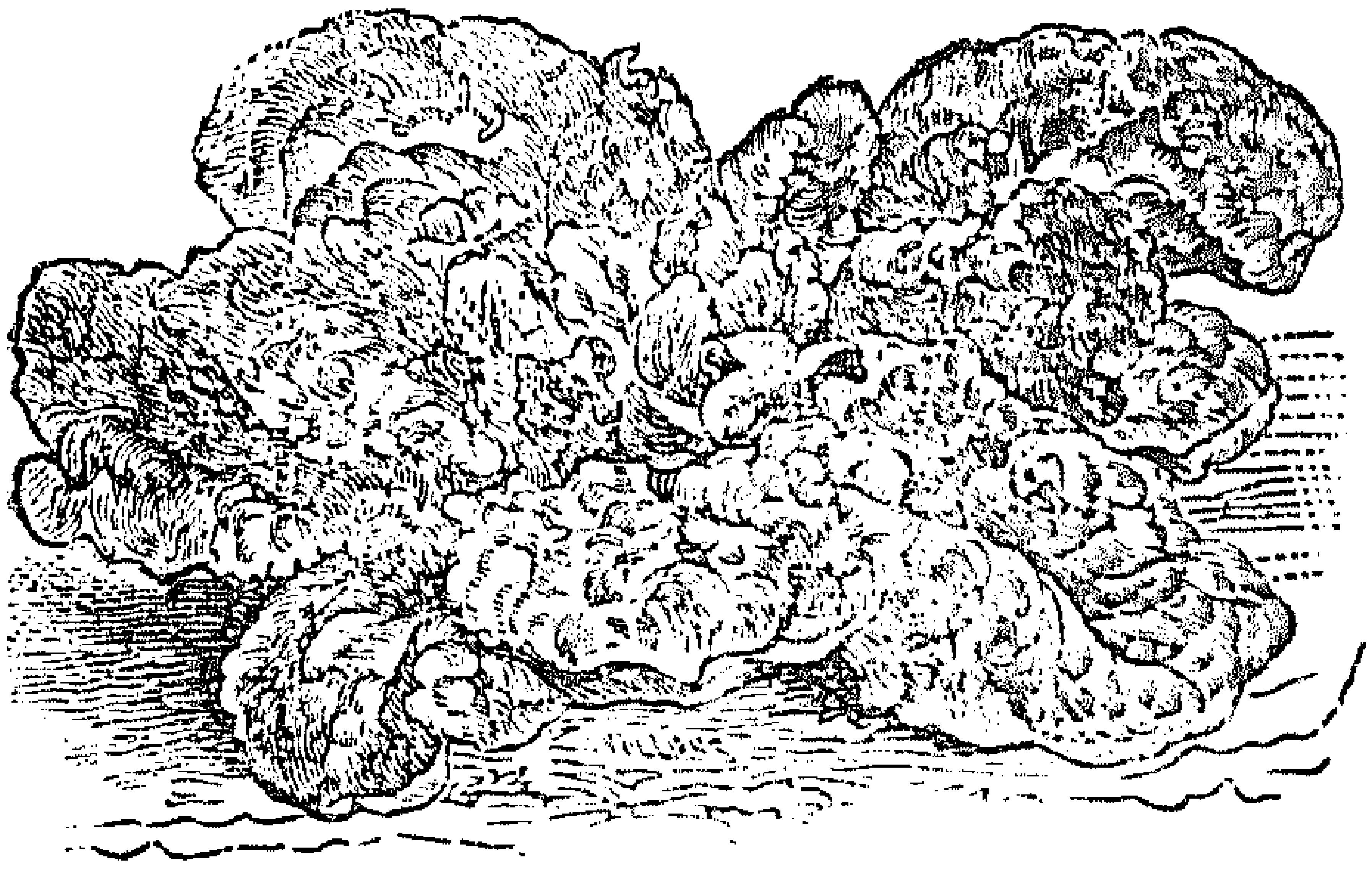
This vegetable is a native of Syria, and derives its botanical name from Ascalon; where it grows wild.

SPINACH.

Spinacea Oleracea.

ANALYSIS.

Potassa	9.69
Soda	34.96
Lime	13.11
Magnesia	5.29
Sulphuric Acid	9 30
Phosphoric Acid	7.89
Silicic Acid	3.16
Phosphate of Iron	8.67
Chloride of Sodium	7.93



This plant is a native of Southern Europe, and also of Western Asia. Its name is derived from the Latin word *spina* a thorn, on account of the prickly seed of one of the varieties. It is a hardy vegetable, and prized in cold countries for the "greens" it furnishes at a time when there is not much choice.

In this State where nature is more prodigal with her winter bounties, SPINACH is rarely seen. If cultivated at all it must be mainly as a curiosity, since the same outlay of time and money would procure very superior vegetables at the same season.

THE IMPROVED ROUND LEAVED is the best kind for this climate.

Have the ground to be planted rich, including a liberal application of lime and salt.

Sow the seeds the last of October, in drills an inch deep and twelve inches apart, after the plants are well up thin out to about eight inches in the drill. Water freely if the weather is dry.

SQUASH.

Cucurbita.

This is another vegetable that is grown in this State for the early Northern markets. And since only the first shipments are profitable, it is highly important that they should be *very* early.

A light sandy soil, made rich by ashes and stable manure is best suited to the SQUASH.

The bush variety is preferred for market. It comes early, is easily cultivated, occupies less room than the vine, is a good kind to ship, and commands fair prices.

The seed should be planted in hills or checks, three or four feet each way, with a peck of manure well mixed with the soil, to each hill.

There are two varieties of the bush scalloped SQUASH, the YELLOW and the WHITE, differing only in color.

BOSTON MARROW is much esteemed, but is from one to two weeks later.

HUBBARD grows to a huge size in this State. On very rich land it is disposed to run too much to vine. This variety should be planted from six to eight feet apart. It will require five to six pounds of seed to plant an acre of the bush, and three or four for the running varieties.

TANYAH.

Colocasia Esculenta.

This is the principal bread plant of the Sandwich Islands. It is a large leaved bulbous rooted plant, and as an article of diet possesses remarkable fattening qualities. Possibly in the cannibal days of those islands, TANYAH may have comprised a desirable preparatory diet for the doomed victims.

TANYAH delights in a rich, low, damp, yet well drained situation, producing under favorable circumstances a heavy crop the autumn succeeding the planting.

"There are two distinct kinds named from their color, the pink and the blue, of which the latter is thought by many to be the most farinaceous, but others prefer the taste of the pink variety.

The cultivation of TANYAH is similar to that of the Sweet Potato. From the smaller roots which are reserved for the purpose, the planting is made about February, in rows four feet apart, and the sets two feet in the row. Keep the ground mellow and porous with a prong hoe. After maturity the roots may remain in the bed, and only dug as used, as they keep well. For the table the roots are roasted and seasoned with salt.

TOMATO.

Lycopersicum Solanum.

This occupies the front rank of early vegetables grown in Florida for Northern and Western Markets. Very early shipments, if in good order, and of attractive appearance, will, beyond a doubt, bring what may be truly termed "fancy prices." To realize $6.00 to $10.00 per bushel, on even one hundred bushels is worth striving for. It will compensate for a considerable investment in material for forcing young plants. Yet beds for this purpose may be constructed in many portions of the State at a very trifling cost. Shipments have been made, it is said, so early in the Spring as not to sell. But it is believed that the fault was in gathering them too green. The shipper relied upon the TOMATOES ripening on the way, as usual. But the marked difference in climate at that season not only retarded—it wholly arrested the process of ripening, and decay ensued.

ANALYSIS.

Carbonic Acid	.3817
Silica	.0606
Sulphuric Acid	.0611
Phosphoric Acid and Peroxide of Iron	.8401
Lime	.0026
Magnesia	.0549
Potash	.7191
Soda	.8898
Sodium	.0952
Chlorine	.1472
Organic Acid	.1576

For an early crop, light, sandy soil, moderately enriched with bone flour and wood ashes, or leaves composted with stable manure is best. On black meadow or bottom land the TOMATO will continue longer in bearing, and produce larger fruit, but these advantages will be purchased at the cost of earliness. It is of course more economical to manure in the hill—and may be done just before transplanting. The distance adopted by a majority of the market gardeners is five by three. Rows five feet apart and plants three feet in the row. It is claimed by some that if planted nearer, four by three for instance, or even three by three, the first shipment will be ready several days earlier. This is worth looking into.

TOMATO land may be broken up into beds of the width the rows are to be, and then run a central furrow for the plants; or use the water furrow (which is the one left between the beds, in the operation of "*ledding*" as it is called,) the way corn is sometimes planted. With the fertilizer in a sack swung around his neck, one man can drop it at intervals of say three feet, followed by another with a hoe to mix the manure with the soil, and, as the finishing act at each hill, to make a hole to receive the plant. A third operator drops the plants from a bucket containing sufficient water to cover the roots well, and a fourth sets them out. Or, the work may all be done by one or two, if necessary, but of course with less dispatch. In the above directions for transplanting, it is assumed that the work is performed during or immediately after a good shower.

Should the ground be dry, apply water freely after the operation. It is important to set the plants deep if inclined to be spindling. Assuming the land to have been thoroughly broken in the previous preparation, the after work will be light. Frequent stirring of the soil with a cultivator or sweep, especially after a rain, will be beneficial.

On much of the old hammock lands of Middle Florida, though worn by long, and in most instances ruinous cultivation, no fertilizer will be required for growing TOMATOES. In old gardens, without any special fertilization stakes six feet above ground are used as supports. And this staking has been found necessary in some TOMATO market farms near Tallahassee.

On new lands TOMATOES will bear longer and yield more in a given season. But where earliness is so essential to profitable culture, no effort should be spared to produce the largest quantity of good, marketable fruit, in the shortest time.

Well drained sandy soils are warmest. They absorb heat quicker and part with it more slowly than clay soils, because of greater porosity. And the absorptive quality is affected by color. Dark shades possessing it in a greater degree than light.

Altitude, within certain limits, is also favorable to warmth. So that hill sides with southern exposure, and hill-tops are less liable to injurious cold than bottoms, or valleys, or plains in the same latitude.

The modifying effect of large bodies of water upon cold currents of air is well known and may be secured by a situation on the southeast side of one of our large lakes, where the otherwise fatal northwest wind would, in its passage over the water, be robbed of its death dealing power.

These facts are important in selecting a situation for a market garden, and should be thoughtfully considered. The advantages of soil and location are not confined to any one section, but are pretty evenly distributed throughout the State. For instance the cultivator of the level lands of the South can utilize the clear water lake bordering his farm, while the resident of Northern Florida, or more properly Middle Florida, can resort to his beautiful hills, and find an almost equal degree of immunity from cold.

TOMATOES should be transplanted at least once before their final removal to the field, as it makes them more stocky and self supporting. Besides, the seeds are generally sown too thick, and unless "pricked out" early and given more distance the plants grow up spindling and weak. Therefore, as soon as the young plants are two inches high, thin out to three inches in the drill, and remove to other beds or boxes.

VARIETIES.

ACME is a very handsome, solid, smooth variety, with a slight purple tinge.

HATHAWAY'S EXCELSIOR: An early, smooth, solid variety, which, with the ACME, is largely grown by the market gardeners of Florida.

To slice up for the table, the best TOMATO grown, although not very salable on account of color, is GOLDEN TROPHY, a large yellow TOMATO, of uniform ripeness, solid and with a flavor more like that of some fruit, especially if served with sugar instead of vinegar.

TURNIP.

Brassica Rapa.

ANALYSIS OF THE SWEDE AND COMMON WHITE TURNIP.

	SKIRVING'S SWEDE.		COMMON WHITE.	
	Root.	*Leaves.*	*Root.*	*Leaves.*
Potassa	36.16	20.36	48.56	12.68
Soda	4.99	......	......	......
Lime	11.36	23.99	6.73	28.73
Magnesia	2.44	2.92	2.26	2.85
Sesquioxide of Iron	0.28	1.90	0.66	0.80
Sulphuric Acid	11.26	6.50	12.86	7.83
Silica	1.63	4.11	0.96	2.05
Carbonic Acid	9.54	6.16	14.82	14.64
Phosphoric Acid	12.51	6.54	7.65	3.15
Chloride of Potassium	......	9.77	......	15.56
Chloride of Sodium	9.77	17.69	5.44	10.67

This is emphatically a field crop, and of such importance in England as to call forth the statement that "England could better give up her navy than her turnip crop." It is largely grown all over the United States, for the use of man and beast, and its cultivation well understood. We insert the analysis to assist the inexperienced tiller of the soil to prepare his bed or "patch" so as to realize the best results. "Cow-penning" is the best mode of enriching the soil for TURNIPS. Next, ashes, ground bones, with stable manure and vegetable matter scattered in the drill after thorough plowing. Lay off the drills two feet apart, and sow as thinly as you can. One ounce of seed will sow over one hundred feet of drill; about one and three-fourth pounds will plant an acre.

THE RUTA BAGA, or SWEDE TURNIP is extensively planted and highly esteemed, especially for the Autumn crop, of which the "PURPLE TOPPED," with oval tapering root, is a good variety. It attains to immense size, and, unlike most vegetables in that respect, does not suffer in *quality* what it gains in quantity. On the contrary, its flavor and nutritious qualities are said to increase with the size.

SKIRVING'S IMPROVED SWEDE, although not so large as the preceding, is thought to be more nutritious. Flesh yellow.

The strap leaved varieties, EARLY WHITE DUTCH, and EARLY RED TOP DUTCH, are very popular, chiefly on account of earliness, the EARLY WHITE taking precedence.

There is also the WHITE GLOBE, a large, handsome globular shaped variety.

The first seed sowing for the early fall and winter crop may be made in August, and the best place a piece of new ground in which the greater part of the large forest trees are left standing, to protect the young plants from the noonday sun, otherwise, and especially if the weather is dry, they will perish as fast as they reach the surface. This frequently occurs when the plants are so minute as to be scarcely visible to the naked eye, and as a consequence the seedsman has to bear the blame for the failure, when if the truth could be ascertained the germination was perfect, and the fault due to the want of shading of some sort until the plants are a week or two old.

YAM---CHINESE.

Dioscorea Batatas.

The history of the introduction of this vegetable into European countries, by Montigny, the French Consul at Shanghai, is rather remarkable. After a succession of failures in the potato crop some forty years ago, extended inquiries were made to discover a more reliable substitute for this important bread-stuff, which resulted as above stated.

"It has annual stalks or vines, and perennial tuberous roots. The leaves are opposite, triangular, cordate, acuminate above, with round basilar lobes, seven or eight nerved converging towards the top. The length and breadth of the leaf is about equal, having a smooth, glossy surface, and of a deep green color. Its footstalks are half of the length of the leaf, furrowed and of a violet color. The flowers—of a pale yellow—are dioecious."

The root or tuber is from one to two inches in diameter and of varying length. When first introdnced it was deemed a great addition to our stock of vegetables but has long ceased to attract much attention. It is very productive, and is propagated and cultivated like the Sweet Potato, with which every one is perfectly familiar.

TROPICAL FRUITS, TREES, &C.

A list of the names of such Tropical Fruits as are now growing in Florida; together with a few of those, which, from authentic accounts of their climatic requirements, may be easily introduced and successfully cultivated here. To this list is also added a few edible nuts, useful and ornamental trees, etc., indigenous to tropical countries; concluding with two or three belonging to the class of Semi-Tropicals, and one the LeConte Pear, destined to be a great acquisition to Southern marketable fruits.

Tropical Fruits.

Akee.
Avocado, or Alligator Pear.
Banana.
Bread-Fruit.
Cacao.
Cherimoyer.
Cocoanut.
Cocoa Plum.
Custard Apple.
Date.
Durian.
Jack Fruit.
Kuronda.
Lichee.
Mammee Apple.
Mammee Sapota.
Mango.
Mangosteen.
Papaw. (*Carica papaya*).
Pine Apple.
Sapodilla.
Sour Sop.
Sweet Sop.
Tamarind.

Tropical Nuts.

Ivory Nut, or Vegetable Ivory.
Nutmeg.
Pistachio Nut.

Useful and Ornamental Trees.

Butter Tree.
Calabash Tree.
Ricepaper Tree.
Coffee Tree.
Teak.

Palms.

Areca Catechu.
Areca Lutescens.
Betel Nut Palm.
Bossu.
Cabbage.
Chusan.
Coco de Mer.
Coquita.
Doum.
Draco.
Ethiopian.
Guinea Palm.
Hardy.
Inaja.
Palmyra.
Peach.
Piassata.
Rattan.
Sago.
Talipot.
Toddy.
Wax.

(With Date and Cocoanut, already described.)

Semi-Tropical Fruits.

Guava.
Japan Persimmon.
Kumquat, or Otaheite Orange.
Loquat, or Japan Plum.
Orange.

LeConte Pear.
Strawberry.

TROPICAL FRUITS.

The general inquiry for information concerning the cultivation of Tropical Fruits, on the part of prospectors, and new settlers, suggests the propriety of devoting a few pages to this interesting subject. And the keen relish with which such information is received, is equally shared by the amateur horticulturist, eager for whatever is novel or ornamental, with the calculating market gardener, ever on the alert for additional sources of revenue.

That the Tropical feature in Florida horticulture has been much exaggerated, both as to its area and profitableness, is to be deplored, since it has resulted not only in individual disappointment and loss, but has tended to retard development in that quarter.

In the "haste to be rich," on the part of unscrupulous land-sellers, they have established and removed at pleasure frost lines by a dash of the pen. Scarcely a county, or election district, but could boast of a locality totally free from all damaging cold. Nevertheless there are places within the borders of our State favorable to the open air cultivation of very tender plants—of delicate Tropical Fruits. This is abundantly shown in the perfect development of the Mango, Mammee Apple, Cocoanut, etc. Besides the fruits and nuts belonging to Tropical and Semi-Tropical regions already in successful growth in this State, many others might be added by the co-operation of the United States Bureau of Agriculture; by State aid and possibly by private enterprise. Happily, through the potent agency of steam, the practicability of interchanging antipodal exotics on equatorial parallels has been fully demonstrated. Moreover the commanding influence of our Government in all parts of the world, renders the accomplishment of such a purpose by no means difficult, if properly managed.

From the descriptions we read of *some* of the luscious fruits grown in India, there is little room for a doubt of their being turned to a profitable account, in the event of their successful cultivation in our State, while many others, unsuited to the more refined palates of Americans would by their wondrously beautiful foliage, and curious products, prove a valuable accession to our Ornamental Trees.

The AUTHOR is largely indebted to a work styled "Gardening for India," by a noted English horticulturist, Firminger, for interesting information relating to plants and trees indigenous to that country, and also for hints respecting the treatment of those we are more or less familiar with, some of which, as the Pine Apple, Guava, Mammee Apple, etc., are natives of the American Continent.

AKEE.

Blighia Sapida.

This is a native of Africa, and in some places a large tree; in others it has been dwarfed to ten feet without diminishing in the least its bearing qualities. Trees of the above size "covered with their scarlet fruit, contrasting beautifully with the fine rich foliage among which it hung," are described as presenting a remarkably ornamental appearance as seen during the months of September in the public gardens at Madras.

"The fruit is of the size and form of a small lemon, somewhat ribbed, and when ripe of a beautiful vermillion color." It is much esteemed in the West Indies, were Sir J. Paxton thinks "it is not much inferior to a nectarine in flavor." It ranks much higher, however, as a vegetable than as a fruit. In Kingston, Jamaica, "it is prepared by first parboiling in water with salt, and afterward stewed or fried in butter. It is said to be wholesome and to well merit its name of vegetable marrow."

It blossoms in June and ripens the fruit in October. We might easily import it from the West Indies.

AVOCADO, or ALLIGATOR PEAR.

Persea Gratissima.

A native of the West Indies, this fruit is successfully grown in Florida, and has been known to bear in four to five years from the seed.

The flowers are in spray, very small, and of pale yellow color.

The fruit so much resembles a large green pear as to be readily mistaken for one before cutting into it. When fully ripe the fleshy part around the stone is of a bright yellow, and seasoned with salt, is thought to be "delicious" by those whose palates have been trained to relish it.

In the centre is a large stone by which the tree, which grows to a large size, is propagated.

In treating of the fruit as cultivated in British India, Sir J.

Paxton writes, "however excellent when ripe, the AVOCADO is very dangerous if pulled and eaten before maturity, being known to produce fever and dysentery." No such effects, so far as known have ever attended their use in this State.

BANANA, Musa Sapientum.
PLANTAIN, Musa Paradisiaca.

Notwithstanding the efforts of some Botanists for a time to maintain a botanical distinction between the BANANA and PLANTAIN, as belonging to different species, it is now very generally agreed that the former is only a variety of the latter. Horticulturists in India have abandoned the name BANANA altogether, and treat of varieties under the generic name PLANTAIN. In Tropical America, however, the old distinction, it seems still obtains. The smaller, more delicately flavored varieties of fruit being called BANANAS, while the larger and coarser kinds are known as PLANTAINS. Some writers adopt a peculiar method of distinguishing between BANANAS and PLANTAINS. It is this: All fruit of the kind that is thought to be improved by cooking—usually sliced and fried like sweet potatoes—is recognized as of the PLANTAIN family, and, on the other hand, such as are more relished in the fresh or raw state are designated BANANAS. The PLANTAIN of the West Indies and of Southern Florida is not only larger and coarser than the BANANA, but is longer and more angular, and the dark red or purple spot which appears upon the stem and leaf of the BANANA is wanting on the PLANTAIN.

There are those doubtless who will object to my classifying the BANANA with tropical fruits, because of their being grown in as high latitudes as the Orange. It is, however, none the less true that only the coarse Horse Banana can be relied upon above the tropical region. The root of the Banana is rarely if ever killed in any part of Florida, and the appearance of large trunks—the growth of only a few months in rich soil—is no guarantee of fruit maturing trees. For no Banana plant can spring from the root and perfect its fruit in one season. Yet there are winters in which even this delicate plant is not affected by the cold anywhere in the State.

The soil for the Banana should be *exceedingly* rich and moist, but there must be no stagnant water within reach of the roots. It is a very gross feeder, and if plentifully supplied with water which will induce a rapid and surprisingly vigorous growth, it may be fed with fresh, strong manures, and in large quantities.

It is considered a very exhausting crop in India; so much so as to make it advisable to change the land every few years. This statement appears unreasonable in the face of the very small portion of the tree lost to the soil, together with the dense shade of its broad leaves.

Generally the pulp is free from seeds, but there is said to be a kind growing at Akyab, and along the coast of Arracan, full of rough, black seeds, as large as those of the cotton plant, and like them enveloped in a fibrous coat.

The Spaniards at one time supposed the Banana to be the forbidden fruit, and from some fancied resemblance to a cross, of the marks on a transverse section, claimed that in eating it Adam had a glimpse of the mystery of redemption by the cross.

The Banana is propagated solely by suckers or shoots which spring from the root. They are separated therefrom with a sharp narrow spade, taking care to preserve as many roots with them as possible.

Set these shoots six feet apart each way in trenches three feet wide and twelve to eighteen inches deep, and fill up with good barn yard manure or guano composted with muck. Use water freely in the operation. Remove all over an average of two shoots, exclusive of the main stem, for a succession, unless it is desired to grow them for extending the area.

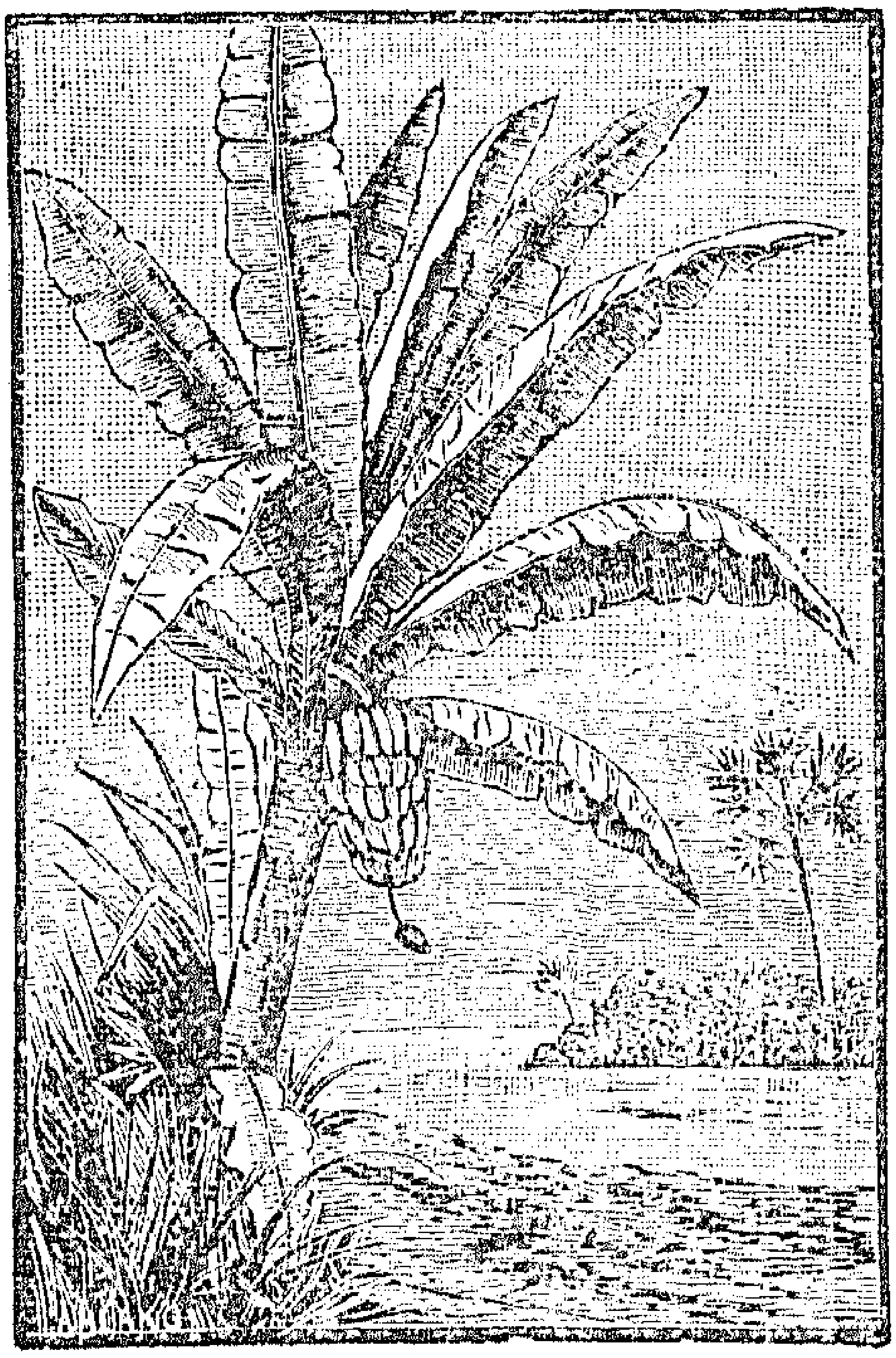
About nine months after the shoots are planted, the large, heart-shaped bloom bud enclosed in a purple case shoots up from the center of the stalk, and bending over starts downward, unfolding as it grows, disclosing a number of beautiful waxy yellow flowers around the stem. The female flowers come first, then the male nearer the end of the stem, which wither away as the others developop into fruit.

VARIETIES.

Among the choicest varieties may be mentioned:

1st. CHUMPA, which is represented as possessing a remarkable delicacy of flavor. The stem of the leaf is tinged with red, which increases to a deep, well-defined red along the central leaf rib. Fruit is of a pale straw color when ripe, and about six inches long.

2d. DACCAE. Another superior variety. Fruit smaller than above, averaging about four by two inches, flavor delicious. The red stripe on the foot stalk is broad, and a quantity of lime-like powder coating the stem and under side of the leaf.



MUSA CAVENDISHII.

3d. Musa Chinensis Cavendishii. This variety is a dwarf as to the height of the tree only. The trunk, leaves and size of bunch being quite equal to the taller kinds. Indeed the bunches are enormous, having been known to weigh two hundred pounds. It has been cultivated in this State for twelve years or more and is highly esteemed. For transporting long distances it is objected to for the reason that the fruit decays very speedily after arriving at maturity, and yet unlike most other varieties, the fruit from prematurely gathered bunches is said to be utterly worthless.

4th. Brazil Banana. The tree attains a height of twenty feet; fruit yellow and very fine with a vinous flavor.

5th. Tahitian. Somewhat similar to the preceding, but not so tall, fruit yellow, turning black when ripe; slightly acid taste.

There are also other, and perhaps sub-varieties, of the above in cultivation in this State, known by the common names Lady Finger, French, Horse or Hog, a very hardy but coarse kind, growing all through the northern part of the State.

Although the bunches of most Bananas hang down—reaching to the ground in the dwarf varieties—there is one found on the

Society Islands with very large bunches of deep orange colored fruit, which stand up erect forming ornamental rather than useful objects, for their taste even when cooked is acrid and disagreeable.

The natives of India have a curious way of securing two kinds of fruit on the same bunch. They dig up a sucker each of two different varieties—having the suckers of the same size and age. These they split in half with a sharp knife, then bind together close and firmly a half of each kind, and then plant out and cultivate in the ordinary way.

Bananas constitute the chief article of food of many Mexican tribes. They may be fried with butter or baked with the skins on. For permanent use they are cut into strips and dried in the sun, or pounded and made into a paste.

They are very wholesome and nutritious. Humboldt affirmed that a surface which would bring wheat enough to feed but one man, will produce in Bananas, food sufficient for twenty-five men.

BREAD FRUIT.

Artocarpus incisus.

There are several species of Tropical Trees, whose product has frequently but incorrectly been designated BREAD FRUIT. One of these is the *Carica Papaya*, or Tropical Papaw. Another is the Jack or Yack Fruit tree, *Atrocarpus integrifolius*, quite common in British India, and described in another place. But there is little doubt that the one now under consideration, viz: *Arto-*

carpus incisus, a native of the Pacific Islands, and which furnishes such an excellent and popular article of farinaceous food, is best entitled to the name.

The Bread Fruit tree is described as exceedingly ornamental, which, added to its fine timber qualities, would independently of its fruit, render it a valuable acquisition to our lawns and parks.

Its maximum height is stated to be about forty feet, but this, if deemed an objection, may be materially modified by dwarfing. As it is, its foliage, with large (ten by twelve inches) deeply incised leaves, of dark green color, and polished upper surface, presents an imposing appearance.

The flowers are monoecious or unisexual, and the female portion grows into a round green fruit, from six to eight inches or more in diameter.

The fruit is oval in form, and about the size of a Cantaloupe, The exterior of the seedless variety is very little if at all muricated, i. e., covered with small cones or tubercles, like the Pine Apple or Sugar Apple, but is reticulated with "slightly prominent areolae."

The process of preparing the fruit of the seedless variety for eating is thus described: "The ovaries become thickened, and when *nearly* ripe, the receptacle is gathered and baked by preference, in the ground. The crust is then removed to the depth of half an inch, and the farinaceous pulp eaten fresh, when it much resembles bread made with eggs. Or it is mashed and packed in bundles, and buried in the earth for future consumption. A slight fermentation takes place and then ceases, and the pasty mass will keep for years. If suffered to remain on the tree until fully ripe the fruit becomes sweet, and resembles clammy cake rather than bread, with an unpleasant odor." An English resident of India was so well pleased with his first venture in preparing and eating Bread Fruit, as to record it for the encouragement of novices. * * "Sliced and fried it seems to me, as well as to all who partook, to be hardly distinguishable from an excellent batter pudding."

Mixed with Cocoanut milk the pulp is said to make a delicious pudding.

The above variety being without seed, can of course be propagated only by layering, cuttings, etc., and this will necessarily operate unfavorably to its introduction into this State. Still, we need not despair. For if we can interest our consuls in the matter, we may through their influence, favored perhaps by English friends, perfect such arrangements as will result in the safe transportation to our shores of this much admired exotic.

In the other varieties—those that produce seeds, the nuts, or seeds—which comprise the only edible portion—are contained within the large fruit or melon. They are roasted and eaten like chesnuts, having much the same flavor, and are said to be quite palatable. On the exterior of this kind, the conical marks, are deeper indented. They are propagated from the seed.

CACAO.

Theobroma.

The beans of this tree furnish the Cocoa of commerce.

"It is called by the Mexicans *chocolat* from which comes the English word chocolate." It is found in most tropical countries extending as far as 25° on either side of the equator, though it is said to flourish best between the 15th parallels.

This tree "is an evergreen, producing fruit and flowers throughout the year. If unchecked it attains a height of about thirty feet, and resembles in size and shape a black heart cherry tree. The leaves are smooth and oblong, terminating in a sharp point. The flowers, which are small, appear in clusters. * * The fruit resembles a short thick cucumber, five or six inches long, and three and a half inches in diameter. It varies in color according to the season, from bright yellow to red and purple, and contains from twenty to forty beans. These are arranged in a pulp of a pinkish white color, in five rows. Their size is about that of a sweet almond, but thicker. In this respect, however, there is a great difference in the trees of different countries. In Central America the fruit is much larger, being from seven to nine inches in length and three to four inches in diameter, and contain from forty to fifty seeds. In the West India Islands and in Demerara, it is so small as to contain only from six to fifteen seeds. The rind of the fruit is smooth, thick, tough and tasteless. The pulp which encloses the bean is a sweet, slightly acid substance, something like that of the Watermelon, and is used for food. The fruit matures for gathering in June and December. The beans when separated from the pulp and dried in the sun are ready for market."

In some countries the fruit is placed in a tub, covered over and fermentation induced, by which some of its acrid, bitter qualities are removed.

"The shell is of a dark brown color, and furnishes the Cocoa shells of commerce. The seeds yield by expression an oil that is very nutritions, and acts as an anodyne."

The above interesting description of this valuable tree is taken from the American Cyclopædia.

It is highly probable the CACAO will succeed in Tropical Florida.

CHERIMOYER.

Anona Cherimolia.

The CHERIMOYER is a native of Peru. The fruit is described as about "the size and form of the Sour Sop, and of a light green color." It is also assigned to "a middle place between the Sweet Sop and Custard Apple, being subsquamous like the former, and reticulated like the latter."

Perfect specimens are found in Jamaica, but only in mountainous localities.

So extravagant are the praises bestowed upon this fruit and the Mangosteen by all who venture upon a description, that one may well be at a loss, unaided by the senses, to conceive of—much less to subscribe to—the existence of such transcendent excellence in any fruit accessible to man.

Mr. Markham discourses thus: "They have most of the other kinds of Anonas in India, but the Cherimoyer fruit, the most exquisite of all has yet to be raised. He who has not tasted the Cherimoyer has yet to learn what fruit is."

And Dr. Seemann avers that: "The Pine Apple, the Mangosteen and the Cherimoyer are considered the finest fruits in the world. I have tasted them in those localities in which they are supposed to attain their highest perfection—the Pine Apple in Guayaquil, the Mangosteen in the Indian Archipelago, and the Cherimoyer on the slopes of the Andes—and if I were called upon to act the part of a Paris, I would without hesitation assign the apple to the Cherimoyer. Its taste, indeed, surpasses that of every other fruit, and Hænke was quite right when he called it the master-piece of nature."

After such a grandiloquent tribute, how does the following brief declaration of Dr. Lindley sound? "Fenelle says one European Pear or Plum is worth all the Cherimoyers in Peru!" What a hurried descent from the sublime to the ridiculous, or, possibly, from the ideal to reality.

This famous fruit it now growing on Indian River in this State, but has not to my knowledge borne as yet, although those engaged in its cultivation speak favorably of its withstanding the cold of last winter, 1883–4, an unusually severe one.

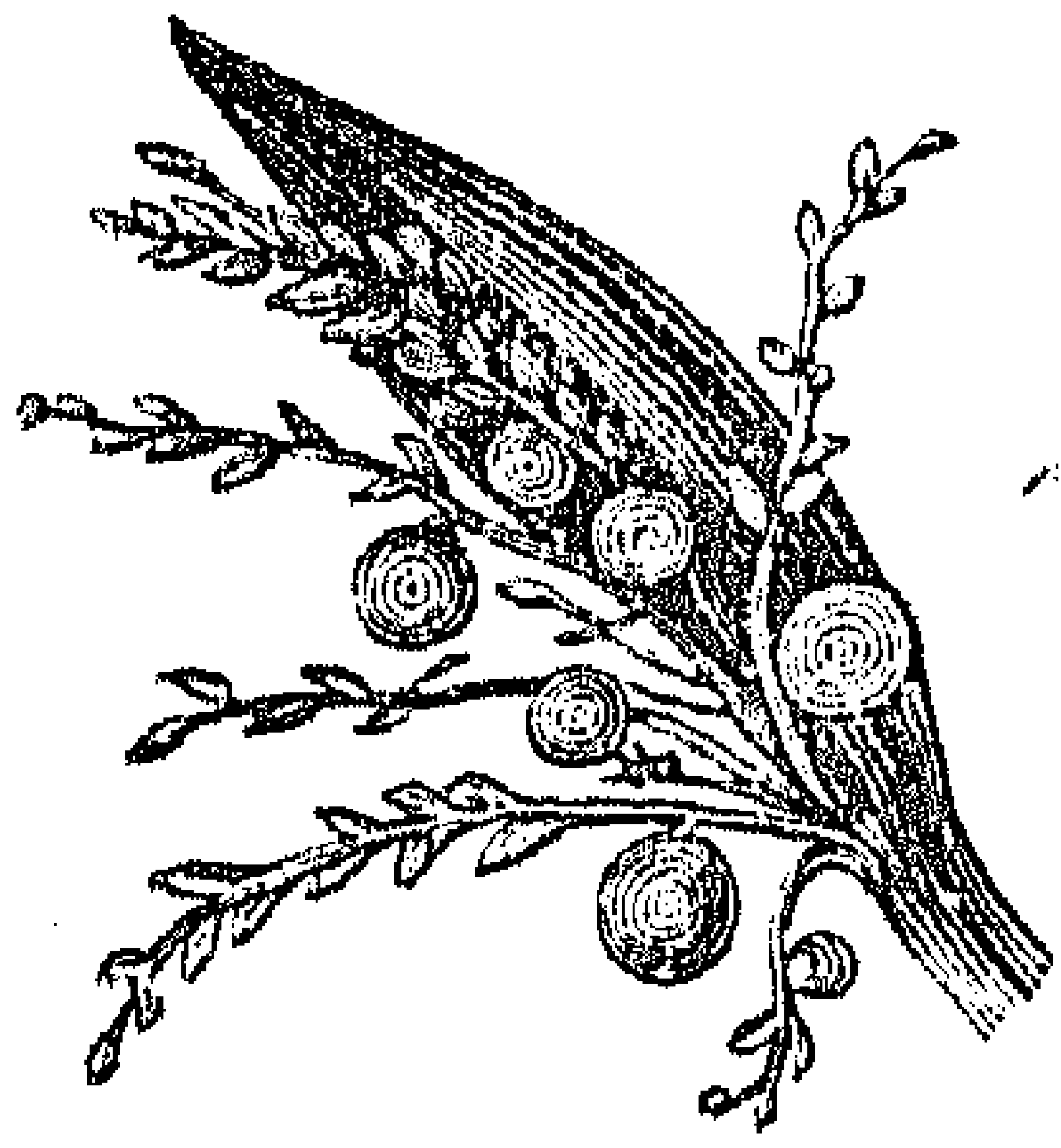
The plants were distributed, I learn, by the United States Commissioner of Agriculture.

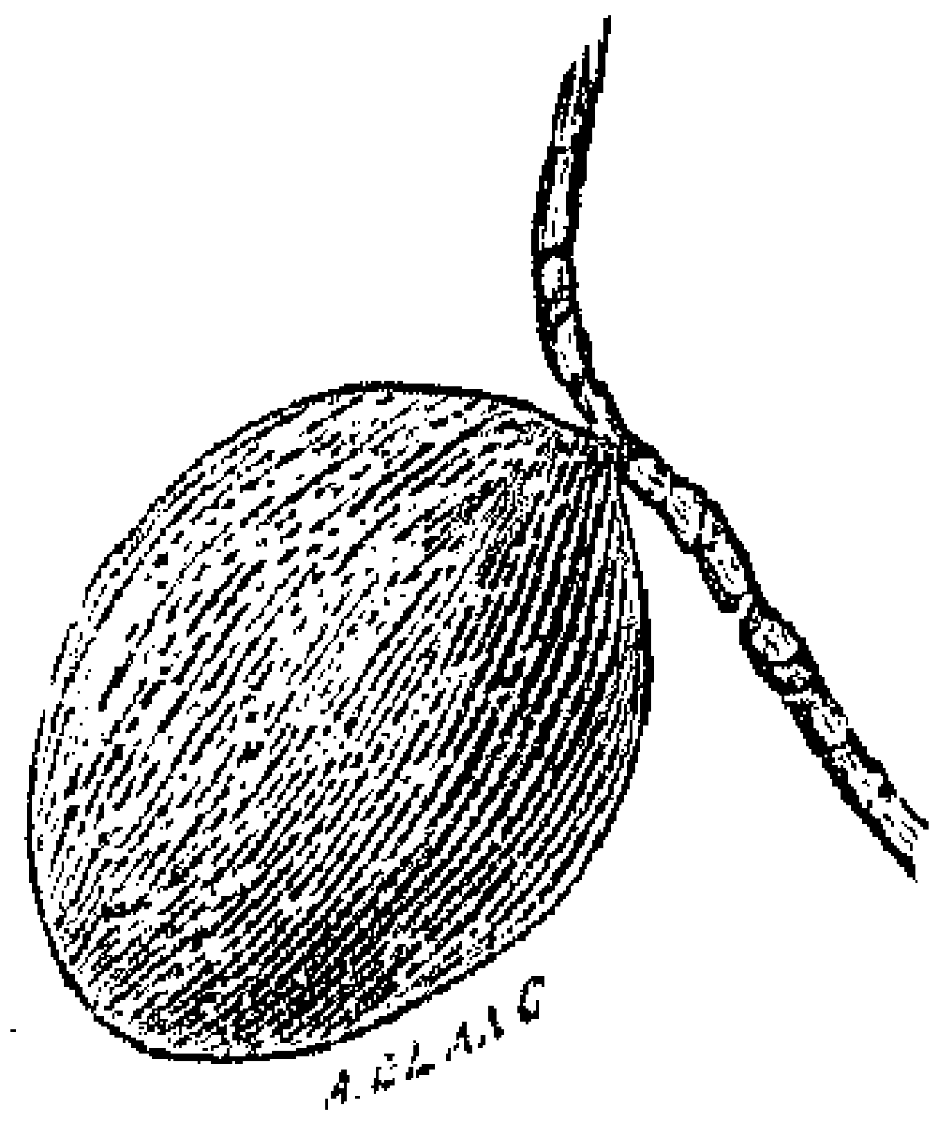
COCOANUT.

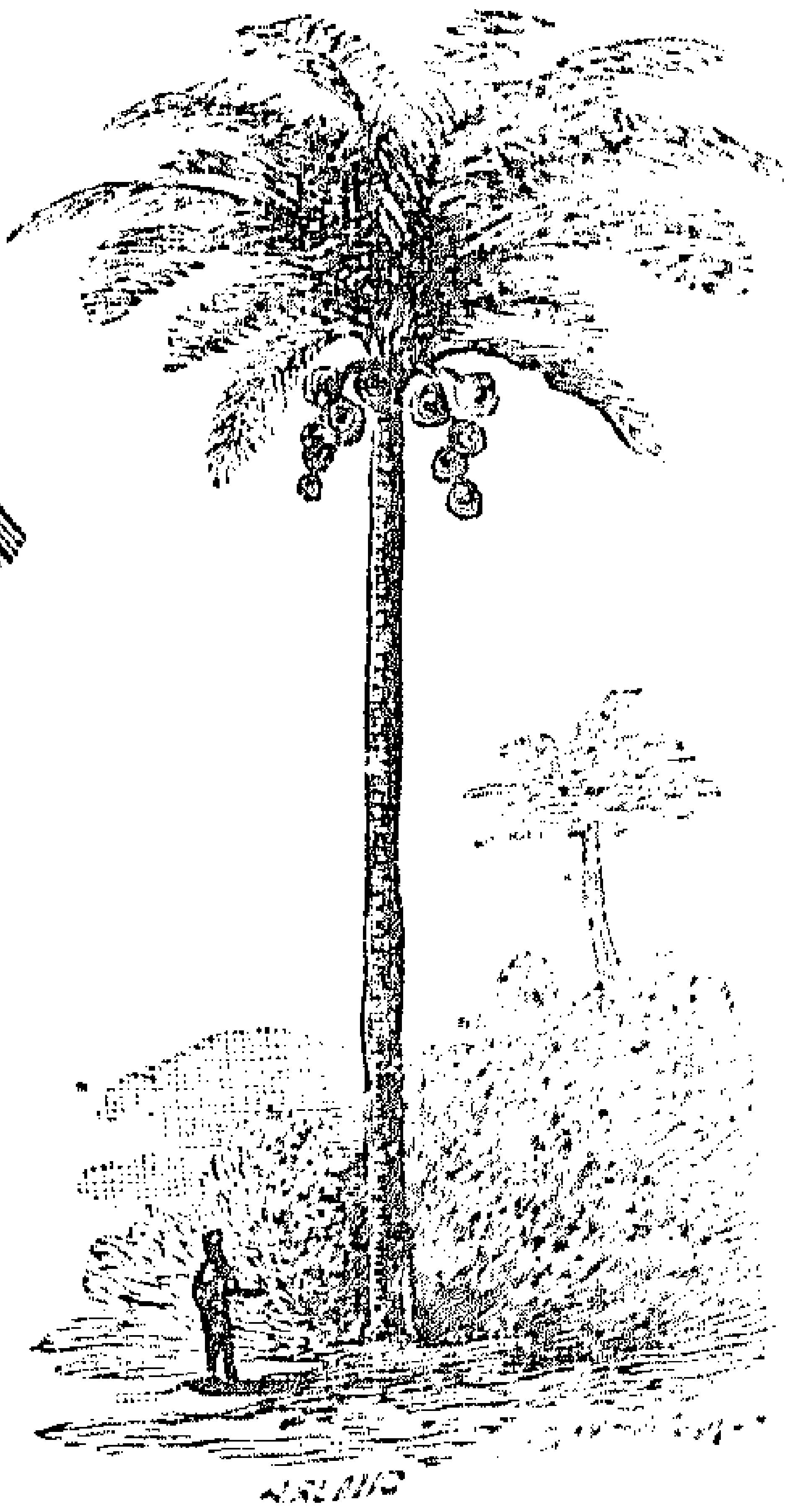
Cocos Nucifera.

Strictly speaking, the COCOANUT should be classed among the edible Nuts, where it properly belongs, but in this State it is customary to speak of it as a Tropical Fruit, and since it is a matter of little consequence, I will conform to the usage.

From authentic information at hand, it may be safely predicted, that within the next ten or twelve years, large areas will be







devoted to Cocoanut culture, and the fruit or nut will become one of the leading exports of Florida. Already have many thousands been planted along both coasts — Atlantic and Gulf—of the Southern Peninsula; and many additions are made every season to the number of Cocoanut growers.

True, its successful cultivation—on account of its exceeding sensitiveness to cold—is restricted to rather narrow limits, nevertheless there are hundreds of acres on the numerous keys and on the main, well adapted to the purpose.

It would be well for those who contemplate engaging in the business to note the following facts: "The farther the Cocoanut Palm is removed from the shore and influences of the sea, the more its growth is diminished and the less abundant its fruit." If taken far into the interior it become a languishing, dwarfed tree. It will grow and even bloom in a higher latitude than it will fruit. The American Cyclopædia states that the Cocoanut grows as far north in India as 26° 50′, but does not bear fruit. No mention is made as to its flowering in that latitude. The precise limit of its cultivation in Florida can from existing data, be pretty accurately determined. The latitude of Lake Worth, on the Atlantic coast, where the Cocoanut grows well and bears full crops, appears to be about 26° 20′, and Fort Pierce, on St. Lucie Sound, near which the author saw in 1871, a flourishing tree, which he was told had never borne, although old enough, is on the parallel of about 27° 10′ to 15′ N. latitude. These estimates of fractions of a degree are guesses, but are sufficiently correct to indicate the method of reliable investigation. Now if the tree growing on the shores of St. Lucie Sound, was, as was positively affirmed, prevented by the cold from fruiting, the extreme northern boundary of the maturity of this nut is somewhere between these points, whose difference in latitude cannot exceed two-thirds of a degree.

Lake Worth lies parallel to the Ocean, and distant only a few rods with a sand ridge between. Originally the water was fresh, but some years ago a ditch connecting it with the Ocean was cut by an old sailor. This was soon widened and deepened by tidal currents into a channel four or five feet deep perhaps, and thirty to forty feet wide, constituting the Lake Worth Inlet of the present day.

The Gulf Stream, as is well known, passes quite near the shore line, bordering the noted Lake Worth section of Dade county, and it is probable that this admitted meteorological modifier has extended the limit for the maturity of tender vegetation further north than the latitude alone would justify.

Proximity to the Ocean, that great storehouse of solar heat and generator of aqueous vapor, is always favorable to the cultivation of tropical plants. But suitable provision must be made to guard against disturbing winds and salt spray, to many of which they are fatal.

The common Cocoanut tree attains a height of "sixty to one hundred feet, and a diameter of one to two feet." Each tree has twelve to fifteen leaves, eighteen to twenty feet long, one half of which are renewed annually. The old leaves dropping off leave scars on the trunk which are rather ornamental.

The flowers come on the axils of the leaves, enclosed in a thick tough spathe. In favorable places these clusters come every six weeks during the rainy season common to tropical countries, and each one ripens from five to fifteen nuts. Each tree has a succession of fruit throughout the year, yielding from eighty to two hundred nuts. It is said to require a whole year to bring the fruit from the first appearance of the flower to maturity.

In planting, some persons, after removing the husk, bury the nut a few inches under ground, being careful to place the end containing the three black spots—the monkey face—uppermost. The stem will rise from one of these, but very irregular as to time. In some instances germination is protracted to six months or even a year, in others, the sprout appears while the husk is still green. This want of uniformity in the germinating period of the nuts taken promiscuously, has led observant cultivators to adopt the plan of sprouting them before planting; decidedly the better way for obvious reasons. The husk is not removed by all growers, by some the nut is planted just as it drops from the tree.

In India the following method is practised: During the month of April the ripe nuts are laid down on the ground and covered an inch deep with sand and seaweed, or soft mud from the salt marsh and watered every day until they germinate. In September those that have sprouted are set in holes three feet deep, and twenty to thirty feet apart. It is recommended to bed the young plants with mud and seaweed previous to planting. For two years after planting they should be regularly and freely watered; it would also be well to protect the young plants from the glare of the sun by shading them with palm leaves.

The growth the first two years is very slow, but after that, if treated as directed they make rapid progress.

The time for coming into bearing varies from four to seven years from germination; and they continue to bear for seventy years or more.

So far as known to the author, only the common Cocoanut Palm has as yet been introduced into Florida. There are, however, many other varieties of this useful tree, several of which growing in British India, and described by English horticulturists, we might profit by importing.

The two mentioned below if equal in bearing and other good qualities to the one we have, would seem to be desirable if only for the greater facility in gathering nuts in the jelly state, on account of the dwarfish nature of the tree, viz:

THE KING COCOANUT is said to be "very handsome, of a golden orange color, and never attains to more than fifteen to twenty feet in height." This is a very choice kind, a native of Ceylon, where on account of its being confined to the gardens of the higher Cingalese, and a few European gentlemen, it is difficult to procure.

DWARF COCOANUT is likewise represented to possess superior qualities. In Ceylon it is in much request, growing to be only fifteen feet high.

So numerous are the uses to which the different parts of this most valuable tree are or may be applied, Eastern nations allege that a description of them all would fill a book. Not an improbable assertion, since the tree furnishes food, clothing, shelter, medicines, implements of war, luxury, household economy, etc.

The oil obtained from the nut, is after all, doubtless, the most remunerative item of manufacture, and that which gives the principal value to the nut, when grown not too distant for export in that shape.

Owing to the very crude appliances employed in the manufacture of oil by the natives of East India and Polynesia, there is very great waste. For while containing more than twenty-eight per cent. of oil, from ten to twenty nuts are allowed to the production of one quart. The best is used in cooking, or for annointing the body in hot climates, and the inferior kinds for illumination. Of that imported into England and the United States, the greater part is used in the manufacture of soap and candles, some in pharmacy in place of lard, and some in medicine as a substitute for cod liver oil.

The following brief but interesting and instructive account of the cultivation ot the Cocoanut, and other tropical plants, was written by Dr. G. W. Potter, of Lake Worth, Dade county; and will be prized by all those in quest of information concerning that rapidly growing portion of Tropical Florida.

"The cultivation of the Cocoanut is assuming large proportions in South Florida. Several hundred thousand have been set out within the last two or three years along the Atlantic coast, which, owing to the proximity of the Gulf Stream, is the portion of that section most favorable to the growth of this palm.

"On Lake Worth alone twenty thousand nuts or more have been set out, or are in nurseries soon to be transplanted. The usual method is to place the unhusked nut in nurseries, and after the sprout appears—which will be in three to six months—transplant. The sprouted nut is planted fifteen to twenty feet apart, in right angled rows, or in quincux, the latter plan being best adapted to breaking the force of the wind.

"On Lake Worth fruit has appeared in the sixth year from planting the sprouted nut, which is the average time in land suited to its growth. The Cocoanut does not get into full bearing for a year after the fruit first appears, and then produces an average of two hundred nuts yearly, giving twenty thousand at least to the acre. Some palms have been known to drop a nut daily, but this is exceptional.

"The cultivation of the Cocoanut should be very shallow, and only enough to kill out weeds. The trees should have plenty of sun, and be well mulched, except in low swampy places. The nearer salt water they are planted, the better they will thrive: frequently growing and bearing, standing in salt water at ordinary tides.

"The advantages that the cultivation of the Cocoanut offers, are the slight attention required after setting out the nuts; its freedom from all diseases, no die-back or bugs attack it; and the fact that the nuts after picking can be stored until it is convenient or profitable to transport them to a market. Probably in a dry, dark place the nuts would remain sweet for a year; certainly for six or eight months."

On the culture of Pine Apples, Dr. Potter has this to say:

"Pine Apples are planted about ten thousand or more to the acre, according to the ideas of individuals, and bear in two years from the slips, and in five to eight months from the suckers.

"The common Spanish Pine is the only variety cultivated to any extent on Lake Worth."

Of other fruits he writes:

"Mangos, Mammee Apples, Alligator Pears, Sappadillos and Sugar Apples are grown on the Lake. All except the two last named require from six to ten years to bear. Sugar Apples bear in two years or less in good soil, but owing to their delicacy can only be transported short distances.

"These are all set out at the rate of one hundred to one hundred and twenty-five to the acre."

COCOA PLUM.

Chrysobalanus Icaco.

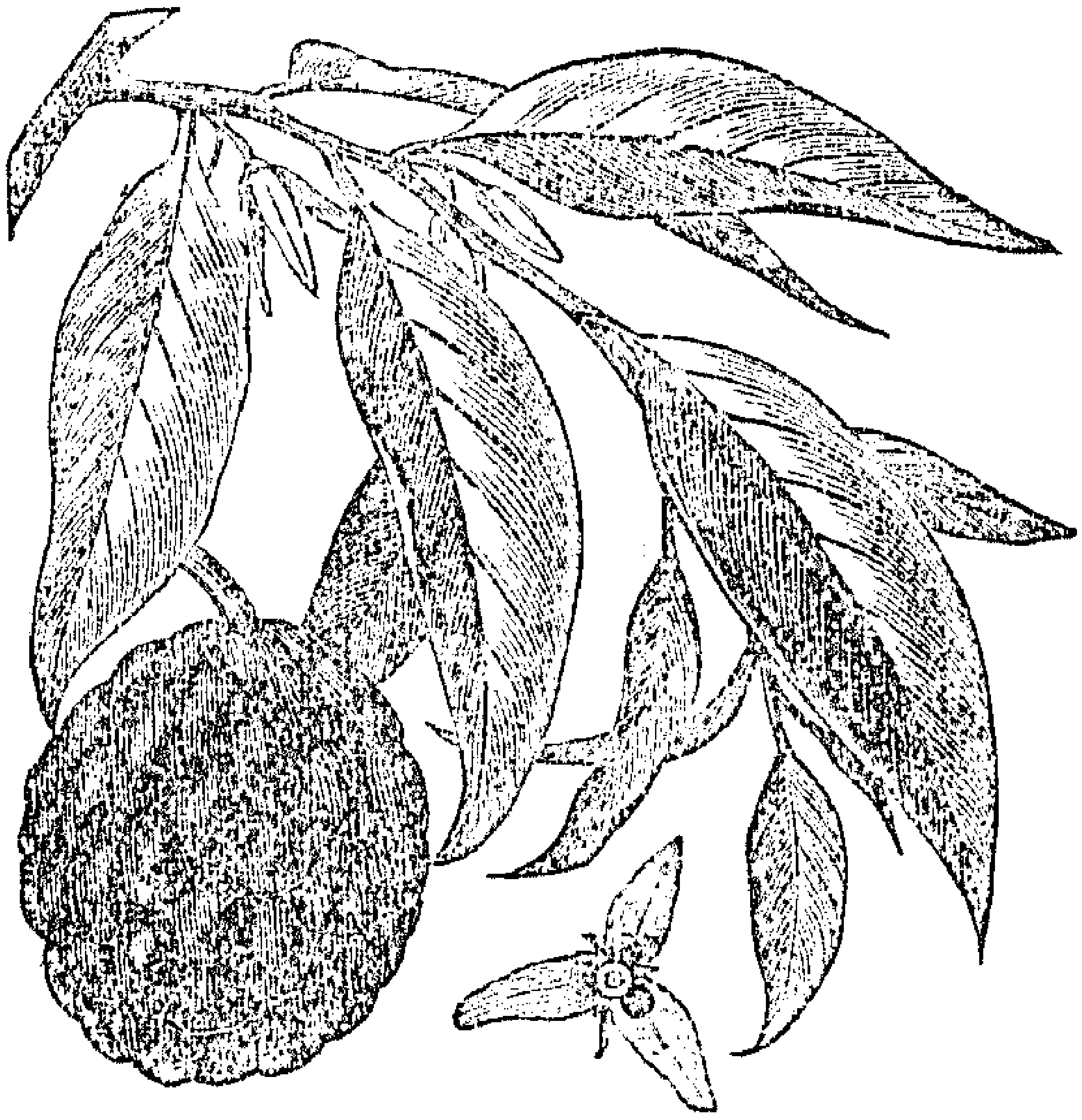
This fruit, also called Spanish Nectarine by some writers, is generally assigned to the West Indies as its native country. It grows so abundantly on the Southern Atlantic Coast in this State as to warrant the belief of its being indigenous. On the fresh water streams flowing into Biscayne Bay, and likely in other similar situations, it is found in great quantity and of luxuriant growth.

The tree, or more properly bush, is from ten to twenty feet high, and bears a fruit the size of a large plum, of red or purple color. The white pulp has a very pleasant flavor and adheres firmly to the stone, which is disproportioned in size to that of the plum.

There is another kind which grows along the beach on an insignificant looking shrub similar to that of the common Papaw of the northern counties, or the Buckeye of this State. The size is about equal to the first described, but the flavor is superior. Both might doubtless be greatly improved by cultivation.

CUSTARD APPLE.

Anona Squamosa.



THE CUSTARD APPLE is indigenous to most if not all the Tropical countries of the world. But the same species, from all accounts, possess very different qualities in different places. Of this fact I am satisfied after comparing Firminger's estimate of "the delicate and delicious flavor of the custard-like substance" of the Asiatic fruit with Dr. Macfadyen's report of the same species in the West Indies, and the remark that he had "never met with a European who was partial to it." From which Firminger concludes with this very appropriate remark: "This would seem to apply that the fruit produced in India where it is so *universally* approved of, must be vastly superior to that grown in what as been assigned as its native country."

And this fully accords with my own test of the disgusting specimens of so-called Custard Apple growing wild in the southern part of Dade county. The resemblance to the edible fruit applied only to the size and shape. The trees on which it grew were large and small—high and low.

The tree in India is small and well adapted to orchard culture. Flowers large and of greenish yellow color.

The fruit is said to be equal in size to the largest apple, and when fully ripe is liable to burst and fall to pieces in handling. It is such a favorite with birds and squirrels as to require to be covered with a net during the bearing season, for protection. Another method of preserving the fruit from the depredations of the denizens of the forest, is to wrap each one up in a piece of muslin when about the size of a hen's egg. Only a fruit of rare excellence could justify so much care and trouble.

To market this delicate fruit, it is gathered long before it is ripe and matured in straw.

"This tree," says General Jenkins, "grows in the highest perfection, in the most rocky and barren parts of the country, and spontaneously out of crevices of rocks, and old walls, and apparently wild.

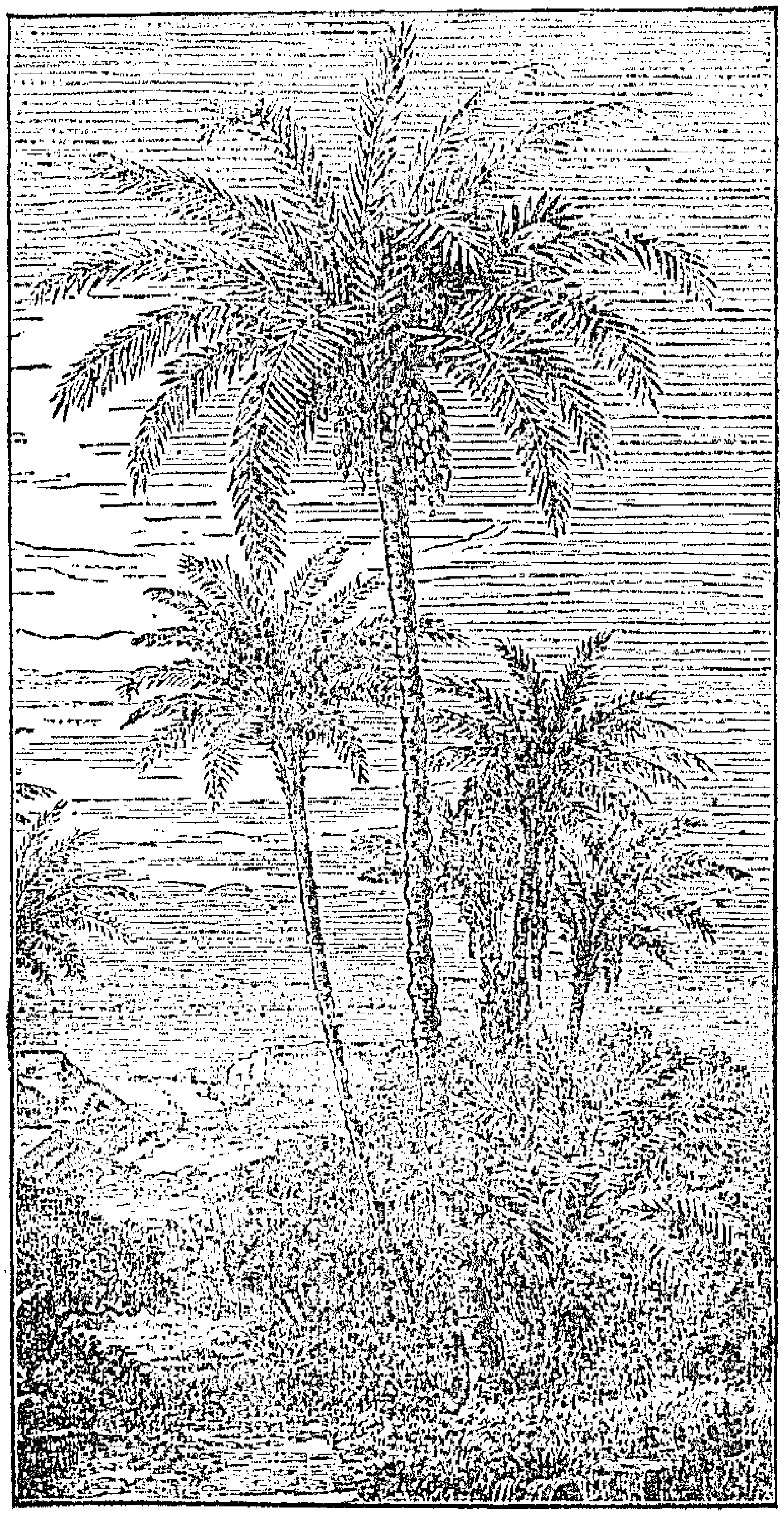
"Plants are propagated from seed, and are of very rapid growth, coming into bearing in two or three years time. A supply of old cow manure applied to their roots during the cold months is of great benefit to them."

A judicious system of pruning is recommended.

The addition of this to our collection of tropical fruits is greatly to be desired, and it is to be hoped that the importation of seed from India will be made through the action of our State Legislature at no distant day.

DATE PALM.

Phœnix Dactylifera.



There is probably no tree on the globe, the sight of which has so revived and rejoiced the heart of the despairing traveller as the Date Palm. To the fainting, dying pilgrim of the trackless desert, it is indeed the harbinger of life itself, and it is pleasant to know that this tree has become a habitant of our own sunny land, and is destined to rank high among its fruit products.

The Date Palm has quite a rough trunk made by the scars of fallen leaves. It is more erect than the Cocoanut, and is said to attain the height of eighty feet, though it is a slow grower. The leaves, of a pale pink color, are pinnatiscet, bearing linear leaflets conduplicate at the base, and the lower leaflets often assume the form of spines.

The flower spathes formed in the axils of the leaves, like the Cocoanut, are woody and contain spadices with many flamens; more than eleven thousand have been counted on a single male spadix. As the flowers are dioecious, the impregnation of the female blossom by the male is, of course, indispensable. To insure a full crop this is done artificially thus: Cut off the spadices of the male when the pollen is ripe, and carefully shake over those of the female.

Propagation is effected both from seeds and by offshoots from the root. At eight years old it bears a full crop of fruit, which, depending upon the quality of the soil, varies from one hundred to four hundred dates.

In the East the date ripens in August, and when dry is buried in the sand, where it will keep for years. According to the experience of some Florida Date growers, it is better to gather the fruit before it is quite ripe, and expose it to the sun for several days, which is said to mellow and sweeten it.

The late A. J. Adams of this State evinced an enthusiastic interest in the horticultural progress of Florida. Through his influence with the Bureau of Agriculture at Washington, valuable contributions were made to the tropical fruits of the State.

In an article on the Date Palm written ten or twelve years ago, Mr. Adams stated that he had growing on his place, near the Southern Gulf Coast, "about one hundred trees of the BUSSORAH, ASSONAD, MENCHICK, RIBON and ROSETTA varieties, which, although small, are making good and promising growth, and are not affected by either droughts, floods or Northers."

Of the numerous varieties of this fruit, amounting to nearly a hundred, Mr. Adams considered the YELLOW ROSETTA among the choicest. "Preserved in layers like Muscated Raisins, it is sold at a high price in London and Paris, and also in the principal American cities under the name of Sugar Dates."

The crushed dark colored Dates usually sold at village stores at a low price, are the ordinary BLACK or GOLIAH DATE, and which are prepared for the market as follows:

"Large vats holding about one ton each are gradually filled with fruit, which is trodden down by men and women, water being added from time to time to soften the fruit. The surplus juice or syrup is then drained off to be used for culinary purposes, as molasses, etc., the residue being made into large cakes, which are covered with matting, and shipped to the various markets of the world."

Fermented Date Fruit makes a palatable wine; so also does the sap or juice of the tree, which is obtained by tapping as in sugar making from the Maple. Date sap is likewise converted into sugar by the usual process of evaporation. The tree is tapped a little below the lower leaves of the crown. A full grown tree it is estimated will yield two gallons of sap a day for three months, commencing the first of November.

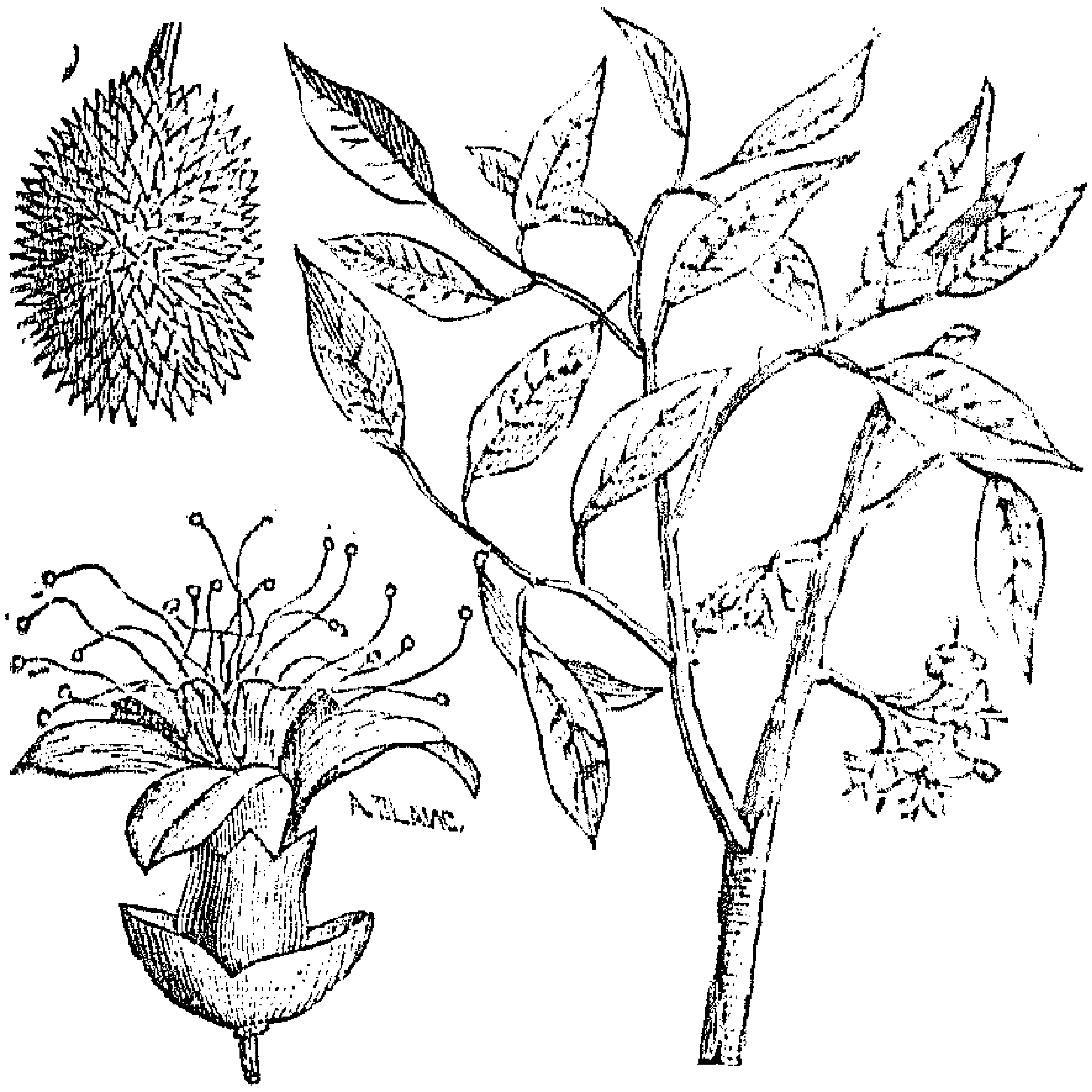
The Date Palm has been known to bear in five years from the seed in this State, and the yield of a matured tree is said to range from three hundred to five hundred pounds per annum.

DURIAN.

Durio Zibethinus.

This is a large forest tree, a native of Malay, and grows to the height of eighty feet. The leaves are long pointed, oblong in shape, and of a silvery red color. Flowers yellowish green growing in clusters on the main branches.

The fruit called DURIAN is round or oval in shape, and ten



inches through the longest way. It has a thick rind covered with strong and hard prickles. It is divided into five cells, each containing from one to four seed, as large as a pigeon's egg. Surrounding which is the edible part, consisting of a delicious cream colored pulp.

Although the flavor is so delicious as to give a high market value to the fruit, the odor is very repulsive to the uninitiated, on account of which it has been called "Civit Cat Fruit."

The seed when roasted are said to resemble chesnuts in flavor.

Each tree is estimated to produce two hundred Durians in a season.

It is propagated from seed.

JACK FRUIT.

Artocarpus integrifolius.

This tree "grows to a considerable size, and is found in nearly all parts of India." Major Drury states "that if planted in a stony soil, it grows short and thick ; if in sandy ground, tall and spreading, and if the roots happen to come into contact with water, the tree will not bear fruit."

The JACK FRUIT, according to Firminger, is "one of the largest in existence, and an ill-shapen, somewhat oval formed, unattractive looking object. The interior is of a soft fibrous consistency, with the edible portions scattered here and there. By those who can manage to eat it, it is considered most delicious, possessing the rich spicy scent and flavor of the Melon, but to such a powerful degree as to be quite unbearable to those unaccustomed to it.

If the edible pulp of the fruit be taken out and boiled in some fresh milk, and then strained off, the milk will, on becoming cold, form a thick, jelly-like substance, of the consistency of blanc-mange, of a fine orange color, and of a melon-like flavor. Treated in this way the fruit affords a very agreeable dish for the table."

Of the two kinds mentioned, the KUJJA or hard kind, distinguished by the large size of the edible pulp, and by the abundance and thickness of its juice," seems to be incomparably the superior. "The exterior of the fruit is smooth to the hand, and green, and the nuts or seeds comparatively small."

Unlike most fruits, the JACK FRUIT grows "upon stout footstalks projecting from the main trunk, and thickest branches of the tree," and not from the end of the branches, wisely arranged thus, for "in no other way, could its ponderous weight be sustained."

"The situation of the fruit is said to vary with the age of the tree, being first borne on the branches, then on the trunk, and in old trees on the roots. Those borne on the roots, which discover themselves by the cracking of the earth above them, are held in highest estimation."

The natives of India have an ingenious mode of training this tree, which will be tried, if, as is hoped it will be, introduced into Florida.

KURONDA.

Carissa Carandas.

Firminger says the KURONDA is "a small shrub with dark shining leaves, and most formidable thorns. A native of India and common in all parts of the country.

"Don describes it as a tree of fifteen to twenty feet high, but I have never met with it more than at most four or five feet high."

The blossoms appear in February, and the fruit matures in August and September. In size, shape and color, it is said to resemble the Damson, but contains quite a number of small seed. The chief excellence of the fruit consists in the several uses to which it may be applied in the culinary department. When ripe it makes a choice preserve; in its immature state, "from about the middle of May to the middle of July, it is used for tarts and puddings, for which purpose, no fruit of the country (India) is preferable." A high endorsement truly, when we recall to mind the number and variety of such fruits in that country. It is to be hoped we shall ere long have this valuable fruit so easily propagated from seed, and consequently so cheaply importable, growing in our own beloved land.

LICHEE.

Nephelium lichi.

This East India fruit, about the size and shape of a large Plum, is described as growing on "a large shrub or small tree of dense, handsome foliage, blossoms about the middle of February with sprays of small pale green flowers, and ripened its large bunches of fruit the beginning of May.

The pulp is said to be "as delicious perhaps as that of any fruit in existence, resembles the white of a plover's egg, and contains a stone in the center." The stone or seed varies in size according to the excellence of the fruit, being comparatively small in the best.

There appears to be a very great difference in the qualities of different kinds growing in India, but no botanical names are given. Firminger says the sort called McLEANS, of those grown by the Agri-Horticultural Society, "is decidedly the best, though not finer than is frequently met with in private gardens."

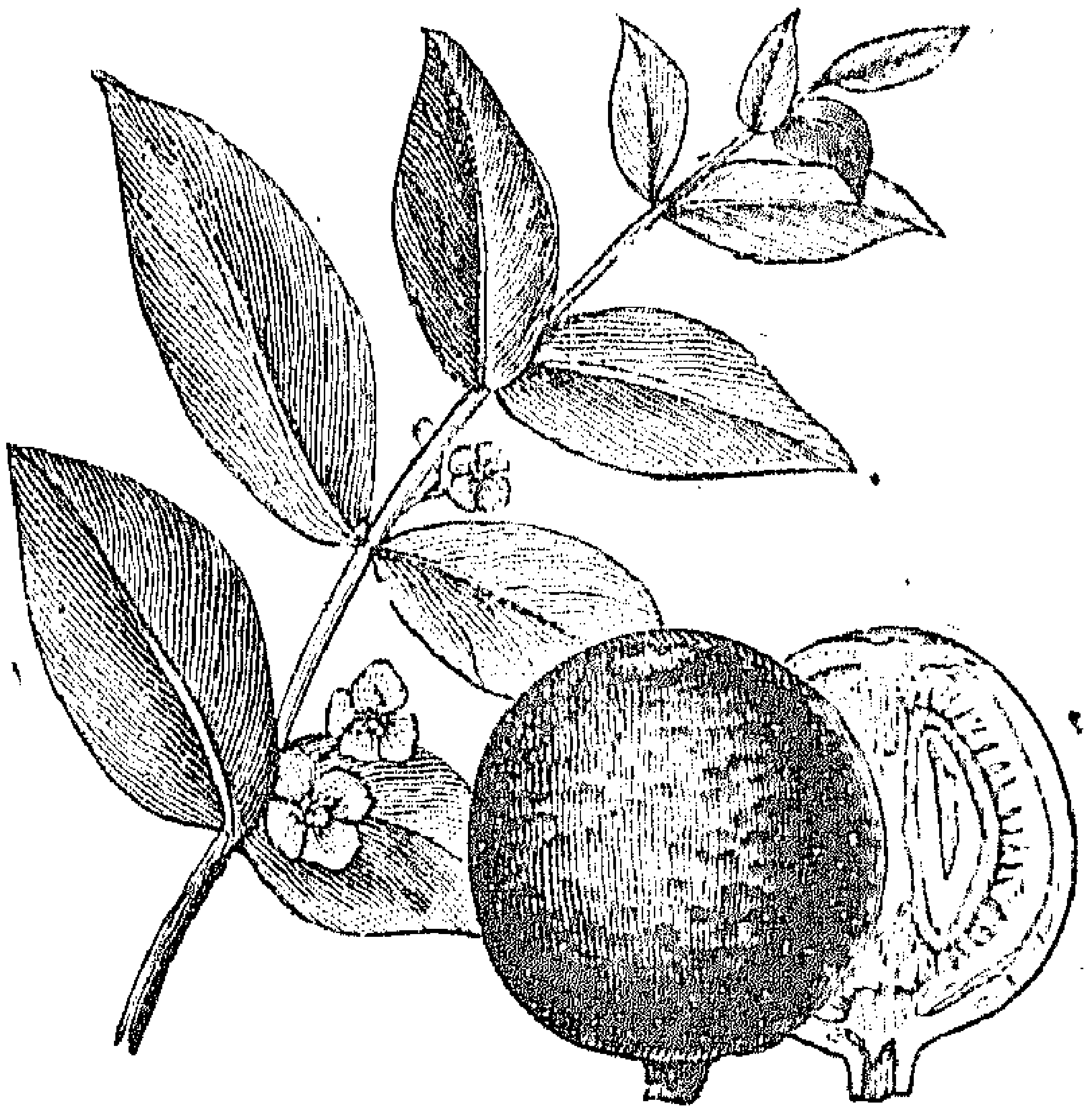
After a careful consideration of the habitat of the LICHEE, it is believed it may be successfully grown in Southern Florida.

The tree is propagated by the seed.

MAMMEE APPLE.

Mammea Americana.

This is a native of the West Indies, growing to be a large



MAMMEE APPLE.

tree closely resembling in shape and foliage the Magnolia grandiflora of the Southern States.

Its success in Florida is well assured. The most probable impediment to its becoming a profitable crop is the difficulty, on account of its exceeding delicacy, of transporting it in the mature state. If pulled too soon it has a strong taste of turpentine, and is anything but palatable; but if allowed to ripen thoroughly, it is a most delightful fruit. The MAMMEE APPLE attains the size of an infant's head, resembling in shape a Russett Apple.

The outer rind, which is thick and leathery, easily peels off; beneath this is a second very delicate coat, adhering closely to the pulp, and should be carefully removed before eating the fruit as it has a bitter taste. The seeds, of which there are two or three as large as Brazil nuts, and in the center of the Apple, are resinous and very bitter, but the pulp under the skin, which when ripe is of a deep yellow, resembling that of the finest Apricot or yellow Cling Peach, is very fragrant, and has a most delicious, though a peculiar flavor.

It is served either alone, or cut into slices, with wine and sugar.

A most delightful marmalade or preserve is made from the MAMMEE APPLE.

The tree in Jamaica comprises the largest and most valuable timber trees. A variety of the MAMMEE APPLE has been naturalized in Africa, producing excellent fruit.

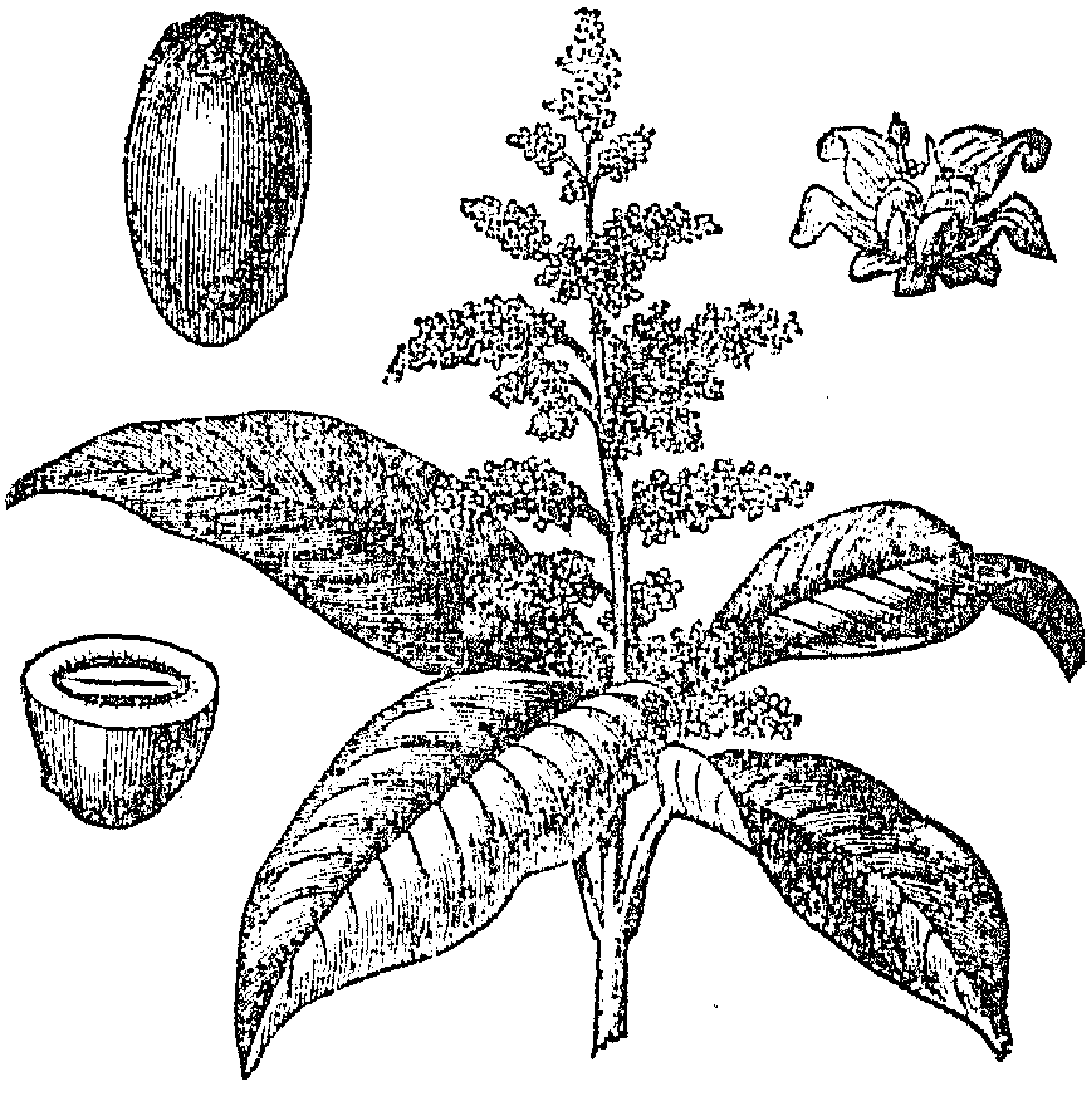
MAMMEE SAPOTA---AMERICAN MARMALADE.

Lucuma Mammosa.

This tree is a native of south America, and bears a large oval or top shaped fruit, covered with a brownish rough skin, under which is a soft pulp of a russet color, *very luscious*, which is called natural marmalade, from its likeness to marmalade of Quinces. It is cultivated much in the West Indies and South America for its fruit.

MANGO.

Mangifera Indica.



MANGO.

This fruit is a native of East India, but is also cultivated in Western Tropics, including our own favored "Land of Flowers," even though it may be in its less attractive form of inferior variety. The tree in its uncultivated state is large and tall, and where it has room for expansion, as on the outskirts of villages is wide spreading like our hickory, walnut or persimmon, under similar circumstances. The MANGO has been so changed, however, as to its habits of growth, by cultivation and its accompanying methods of propagation, *cutting*, *grafting*, etc., as to dwarf it to a size suitable for orchard or garden culture.

It has simple, entire, lanceolate, leathery leaves, and large terminal panicles of flowers; the calyx is four or five parted, petals six; the stamen four or five, only one or two of which are fertile; ovary one-celled, with a curved style.

The fruit is of an oval form a little flattened at the apex, and of various sizes, the better sort being about the size of a goose egg.

They also vary in color, at first green, then partly or wholly of a dull orange shade. The inferior kinds have been compared to tow soaked in turpentine, but the pulp in the choice varieties is said to be of the consistency of blanc mange, so as to be eaten with a spoon, and "rivalling if not excelling any fruit in the world for deliciousness of flavor."

The MANGO trees blossoms in Febuary with sprays of small, greenish flowers, possessing an agreeable fragrance, and strong enough to scent the air for some distance.

From a great number of varieties, the following are rated as among the best:

GOPAL BHOG, in high estimation, of moderate size, of a deep amber and orange color when ripe.

LARGE MALDA, a middling sized fruit of an olive green color when ripe, the interior of a deep orange color. About the finest of all.

Referring to this variety, Firminger says: "To those who have never partaken of it, no words can convey an idea of the merit of this exquisitely luscious fruit."

PETER, a moderate sized Mango of roundish form, with a projecting heel on one side. It ripens of a dull russett color, with a reddish tinge, and is considered of first-rate merit.

SINGAPORE, a fruit of the largest size, ripening all over of a greenish golden yellow. By some esteemed first class, by others only second, but its size is attractive. So is the size and color of SOONDERSHAW, a large fruit when ripe, it is very gorgeous in color, of bright orange and vermillion. This is also rated second class.

The Mango is readily propagated from seed, but there are opposite opinions respecting the seedling's coming true to its kind, and each sustained by strong backers. This diversity, based doubtless upon actual experiment, implies that it does and does not. Dr. James remarks: "The seedling of the grafted tree gives fruit in five years, and is nearly equal to the grafted plant. It too will grow in many soils where the grafted plant will not succeed."

Another author of prominence writes: "Two of the trees raised from seed produced fruit exactly alike and fully equal in every respect to the fruit of the parent tree."

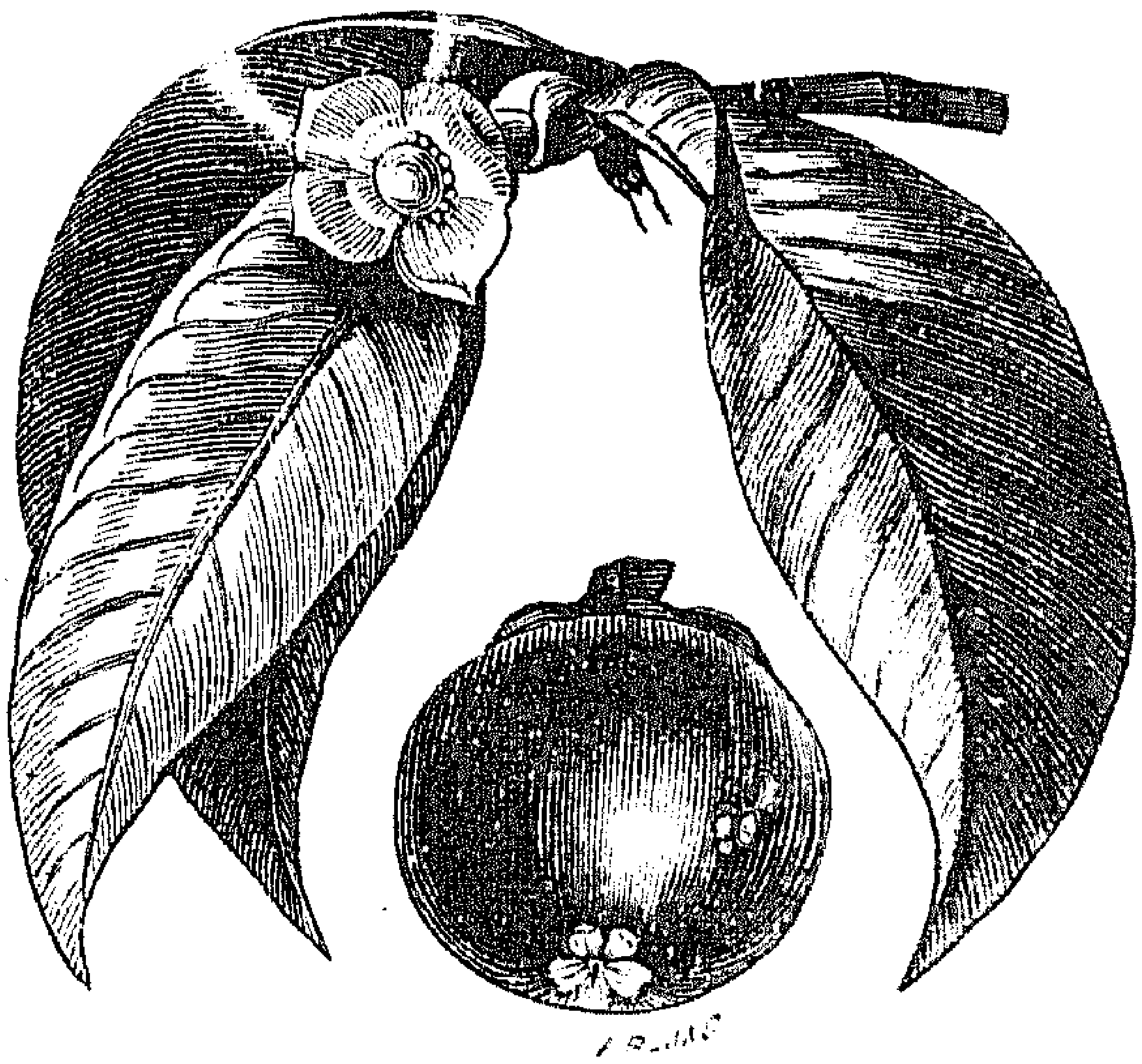
It is a common practice in India to remove the earth from around fruit trees—the Mango among others—and expose the roots for two or three weeks. This is usually done in November of each year, and in December the roots are re-covered with a plentiful supply of well prepared manure.

It is also stated that during the months of April, or while the fruit is swelling, to drench the soil around the stem with liquid manure when practicable, or water, has been found very advantageous.

Mr. Neeld, of Tampa Bay, and a successful cultivator of this fruit, reports that they bear at four to five years old, and stand the extremes of season, wet or dry, better than the orange. One tree, eight years old, bore last year, he says, 8,000 Mangos. The variety he does not give. Referring to the cultivation required, he adds: "The same culture as the Orange gets, is all they need."

MANGOSTEEN.

Garcinia, Mangostana.



MANGOSTEEN.

This fruit is a native of the Malay Islands, about the size and shape of an Orange, growing on an upright stem, twenty feet or more in height.

"The leaves are seven or eight inches long, three to four in breadth at the middle but tapering gradually to both ends; the upper surface is of a glossy green, and of an olive color beneath.

"The flower resembles a single rose composed of four roundish petals of a dark red color, thick at the base but thinner toward the margins. The rind is like that of the Pomegranate, but softer, thicker and fuller of juice; it is green at first but changes to a dark brown, with some yellowish spots; the inside is white, or of a rose color, and is divided into several cells by thin partitions in which the seed are lodged, surrounded by a soft, juicy pulp of a delicious flavor, partaking of the Strawberry and the Grape; one writer alludes to its qualities as 'utterly inexpressible,' another speaks of it as being 'composed of the *best* of the *most palatable* fruits, in magical combination.'"

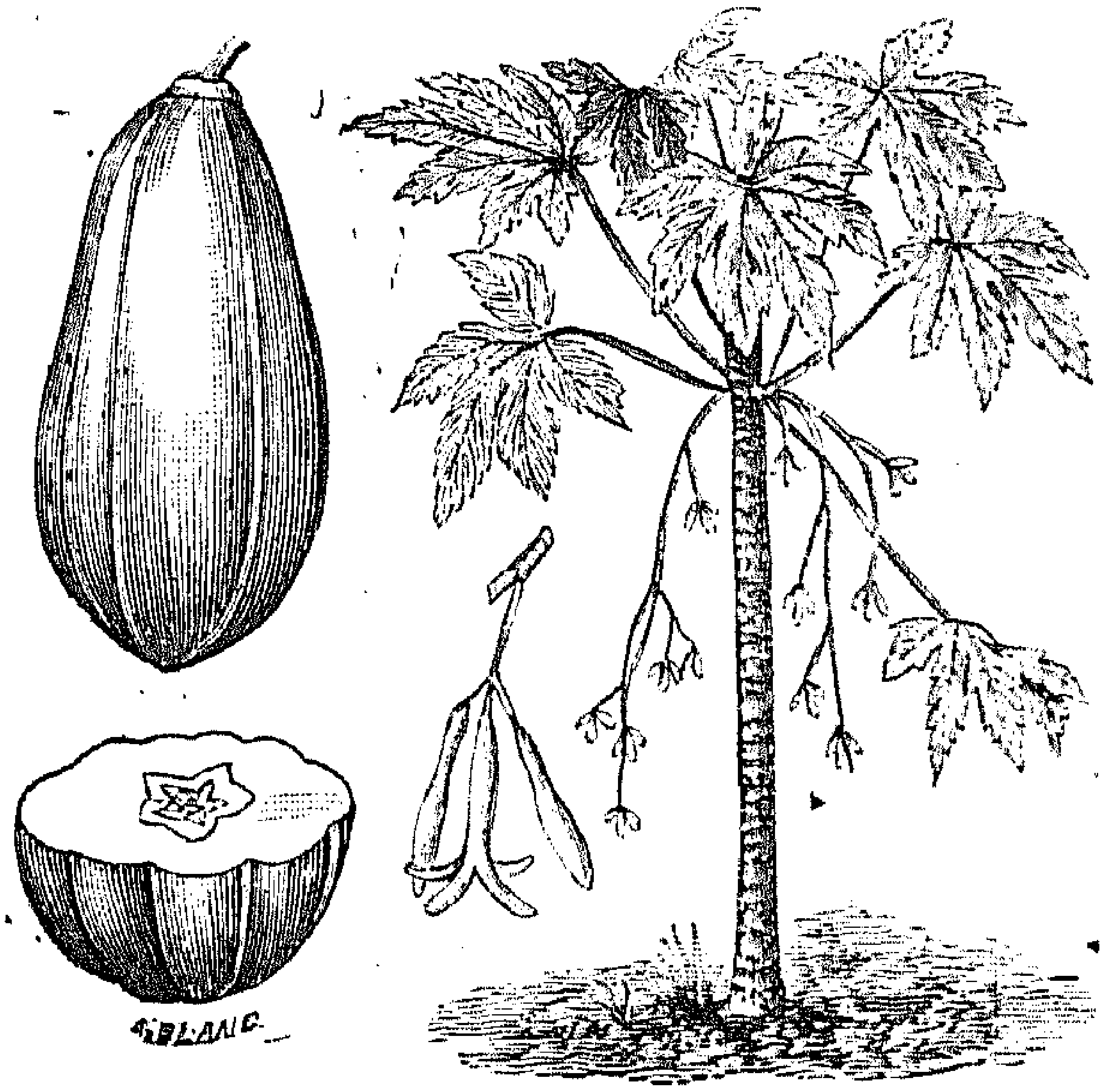
Besides being so pleasant to the taste, the MANGOSTEEN can be eaten in great quantities without inconvenience or ill effects. The sick are permitted to partake of it free of stint or scruple. In a word one might infer from the unmeasured terms of praise bestowed upon this unrivalled fruit, that it either was or should have been the one that so fascinated our appreciative progenitress of Eden memory, as to lead to the indiscretion into which she was unfortunately betrayed.

From the statement of Firminger that: "The cultivation of the Mangosteen in the open air at least, as high north as *any part* of Bengal [the southern part is about 22° or 23° N. lat.—AUTHOR.] seems now pretty well decided to be impracticable." We cannot hope to grow it in Florida without protection. Hence the assertion that it has been raised here unprotected, must be unfounded. It is not improbable that the fruit referred to is another member of the *Garcinia* family, viz: *Garcinia Cowa*, or *Cowa Mangosteen* and not *Garcinia Mangostana.* The COWA MANGOSTEEN belongs naturally to a much higher latitude. It is described as a very handsome tree, with luxuriant foliage of large laurel shaped leaves. The fruit, which, but for its containing two much acid to suit most palates, would likewise be pronounced delicious, resembles the MANGOSTEEN proper in form, but smaller, and is of a russet apricot color.

It makes an excellent preserve.

PAPAW.

Carica papaya.



PAPAW.

The PAPAW is said to be a native of Tropical America. It is easily naturalized so that once becoming established it is not easily eradicated. There is in the southern portion of this State a wild variety, growing in the forests, in some places so thick as to constitute a grove, which most likely originated from the imported or edible sort, if so be it is an exotic.

The trees attain to the height of twenty to thirty feet, with a diameter of a foot or so at the ground, but tapers upwards considerably. Is has no branches, and its foliage consists of a crown of leaves at the top whose petioles are so long as to supply the place of limbs in the proportional symmetry of the tree.

The flowers are dioecious and appear in long racemes; the males with funnel-shaped corollas, and the females with five distinct petals.

The fruit is a huge berry, as large as a good sized Musk Melon, to which, from its ribbed exterior and dull orange color, it bears a striking resemblance. It has a thick fleshy rind, and numerous small black wrinkled seed arranged in five longitudinal lines along the central cavity.

The PAPAW is eaten in a number of different ways; but, from my experience the palate of most recruits should receive more or less schooling before any one of them is properly appreciated. Nevertheless, lovers of this fruit, either naturally or from acquired taste, are by no means wanting.

Some persons prefer to eat it raw with pepper and sugar as you would a Cantaloupe, while others pluck the *young* fruit, boil it, and after adding sugar and lime juice make it into a sort of sauce similar to Apple sauce.

The tree is a prolific bearer, the upper part covered with flowers, and the lower showing large well matured fruit, all at the same time.

Those who have tried thinning out the fruit to a limited number, observing to do this when the PAPAWS are small, and drenching the trees with water from then until the fruit is fully ripe commend this plan very highly. The flavor, it is affirmed, is improved to a marked degree, and the size increased to that of well grown Watermelons.

The PAPAW is propagated by seed, and comes into bearing within a year, during which time it reaches the height of ten to twelve feet.

It is a pretty tree in the earlier stages of its growth, but an old tree is by no means attractive.

This tree is much prized for qualities peculiar to it alone. It abounds with a milky, bitter juice, which contains *fibrine*, a principle with this sole known exception, belongs to the animal kingdom. A few drops of this juice mixed with water, will, in a few minutes, it is said, render tough meat very tender. The same effect is produced by wrapping the meat up in a leaf, and keeping it so over night. It is likewise claimed to make tender the flesh of old animals, poultry, etc., fed upon the leaves. The juice of the ripe fruit used as a cosmetic will remove freckles, and that of the green fruit is an efficient vermifuge.

In the French West Indies the leaves are used for soap in washing linen.

While several writers of authority ordinarily concur in attributing the above extraordinary properties to the Papaw, Dr. Davy alleges, that after careful experiment, to ascertain the truth or falsity of the above statements, he failed to discover any such peculiarities.

The tropical tree and fruit as described in the foregoing, should not be confounded with another genus, ASIMINA TRILOBA, of the Custard Apple family, or *anonaceæ*, and common to the Middle States of the Union.

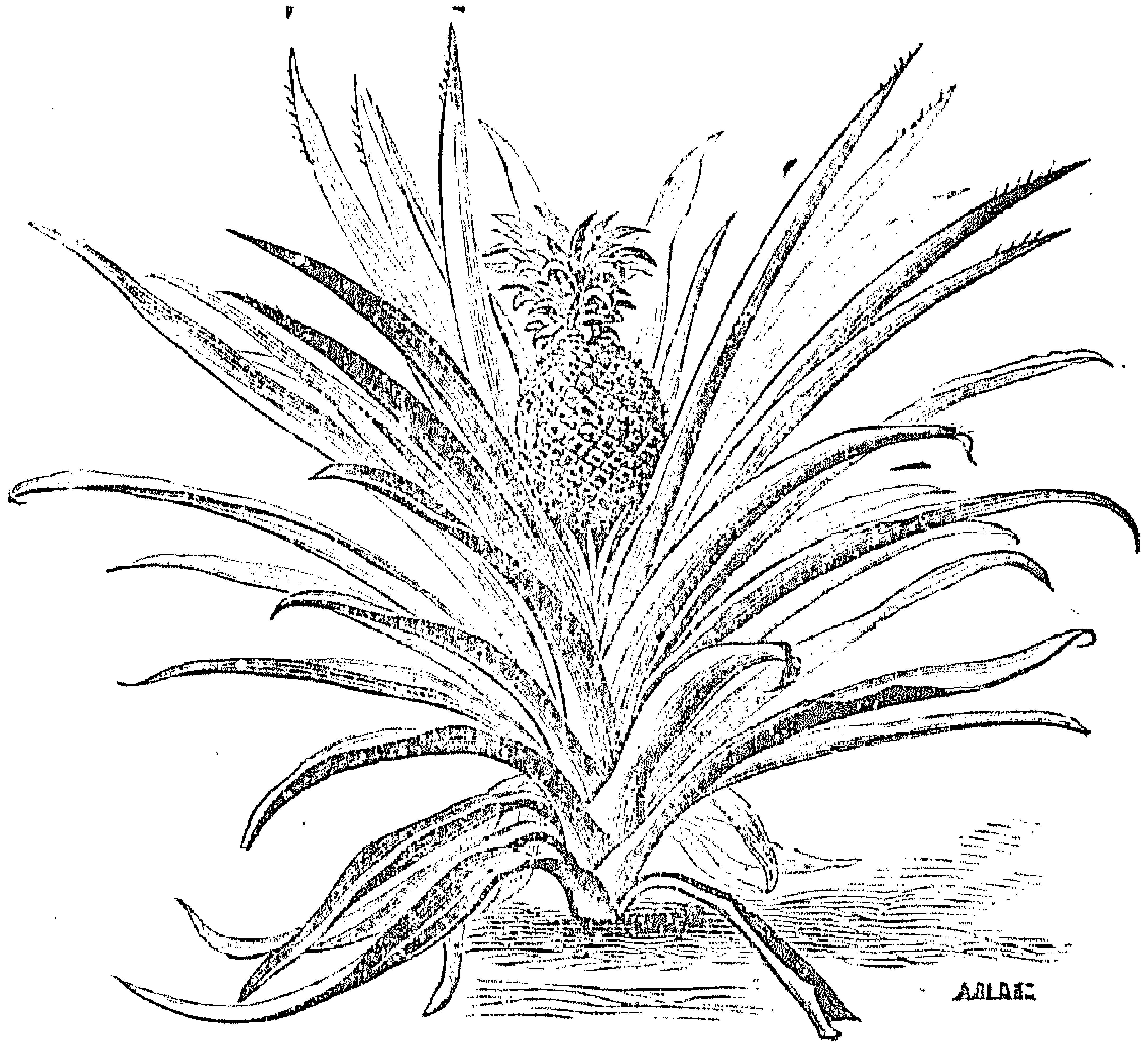
In some localities this last named Papaw grows on a bush or shrub, in others—in the Southwestern States, notably in mountainous districts—the tree reaches thirty or more feet in height.

The fruit is three to four inches long, and about two inches thick, with a tender yellow skin when ripe which encloses a soft custard-like pulp, very sweet, seed large and flat.

PINE APPLE.

Ananassa Sativa.

This delicious fruit is of South American origin, the plant being a native, probably, of Brazil. Its generic name comes from the aboriginal "*nanas*," from which the Portugese derived "*ananas*," and this is now retained in most European languages.



PINE APPLE.

Pine Apples are grown in several counties of this State, extending so far north as to require full protection nearly every winter. Where this extra care is essential, their profitableness as a market crop may well be questioned, unless prices could be obtained similar to those realized for the products of English conservatories. Pine Apples grown under glass in England are esteemed to be of far greater excellence than any others, and command, as raised by market gardeners, from three to six shillings a pound, while the entire apple—imported from the West Indies—only brings half a crown, or two and a half shillings. Considering the enormous size to which these hot house apples attain, the largest on record being fourteen pounds twelve ounces, it would seem to be a paying business. Allowing even eight pounds for the weight of the apple, and four shillings as the price per pound would foot up $7.76 in our currency for a single specimen of this Hesperidean fruit. Contrasted with Florida prices, it may be stated that individual pines have not unfrequently sold for seventy-five cents in the interior, and when several years ago the owner of the largest Pine Apple field in the State sold an entire ship's cargo at an average of fifteen cents round, it was considered an admirable sale.

The cultivation of this fruit in the southern counties, notably on the keys and along the shores of Indian River, is increasing in extent every year, and said to be remunerative. Its flavor is so very much improved by ripening on the bush, and rendered so universally acceptable to the palate, that every fruit grower might well afford a little extra labor to furnish such a luxury to his family.

The Pine Apple is a biennial, with the habit of the Aloe, but has thinner leaves. It rarely produces seed except in the wild state. Yet it is by means of the seed that new varieties are produced. It is propagated, like the Banana, by suckers springing from the roots, and also by slips from the sides, as well as the crown bud from the top.

The suckers, or shoots from the root, bear fruit soonest; in Dade county six to eight months is the usual time; the slips in at least eighteen months, and the crown still longer.

They are usually put out in rows three feet apart, and two feet in the row, during the rainy season, in August. From the time of flowering, January to March, until the harvest, June to August, the plants—leaves and all, should be freely watered every day, and in arid districts the water is puddled around the roots.

A sandy loam, well exposed to the sun and thoroughly enriched with ground bones, is the most suitable soil.

Among the choicer varieties are, CEYLON, said to be the finest flavored of all. Fruit rather large, greenish when young and of an orange color when ripe.

SYLHET, or KOOMLAH, is a small fruit, compact in form, and of high reputation. The fruit is black when young, but turns to a bright yellow color when ripe. It is peculiar for the large size of its eyes of which there are not more than seven or eight.

DACCA, very fine, remarkable for the smoothness of its rind and the white color of its eyes.

CAYENNE, a highly esteemed variety, largely cultivated in Europe. There are, besides the above, QUEEN, ROTHSCHILD, PRINCE ALBERT, etc., each with special endorsers of excellence.

Cultivators of this fruit in India, earnestly recommend the frequent change of grounds, the same as in Banana culture, claiming as the result a very marked improvement both in the quality and quantity of the fruit. Where a choice is offered new land is always preferred.

SAPODILLA.

Achras Sapota.

This tree is a native of Jamaica, but grows to perfection on the Island of Key West and other islands and many places on the main land in Florida.

The tree has very rich and attractive foliage, and is much prized as a garden ornament. Its flowers are small and unattractive.

The fruit is round, from two to three inches in diameter, with a rusty brown, but thin and tender rind. The interior consists of a pale brown juicy pulp, surrounding black, almond-shaped seeds, with a flavor considered by some persons as *exquisite*; while others pronounce it too sweet to be agreeable.

There is said to be another variety which differs from the above only in the fruit's having the form of an egg instead of an orange.

The tree is raised readily from the seed, and comes into bearing in about six years from planting. Like most tropical fruits, the Sapodilla is difficult to transport, unless prematurely gathered, which impairs its flavor. It is frequently seen in the Jacksonville market.

SOUR SOP.

Anona Muricata.

The nativity of this fruit is assigned to the West Indies, although grown in several Eastern countries.

The tree is described as "small and shrubby, with dark green shining laurel-like leaves, of a pungent odor, somewhat similar to that of the Black Currant; and a very ornamental object when bearing its fine, large heart-shaped fruit."

Of the fruit in the West Indies Mr. Gosse writes most favorably; representing it as "lusciously sweet and of a delightful acidity; often larger than a child's head; covered with prickles."

Very unlike the above description does the same fruit appear to East India growers, where most persons ascribe to it such "a harsh and unpleasant flavor as to be quite uneatable."

As in the two named species of Anonaceæ, "its form is like that of a bullock's heart, but rather prolonged. The seed are scattered throughout a soft woolly pulp, intermixed with a juicy mucilage of a strong, rather vinous flavor, somewhat like that of the Pine Apple; but it is wanting in sweetness, and has a certain degree of rankness that causes it to be disliked by most persons who have not acquired a taste for it."

It comes readily from the seed.

BULLOCK'S HEART---SWEET SOP.

Anona Reticulata.

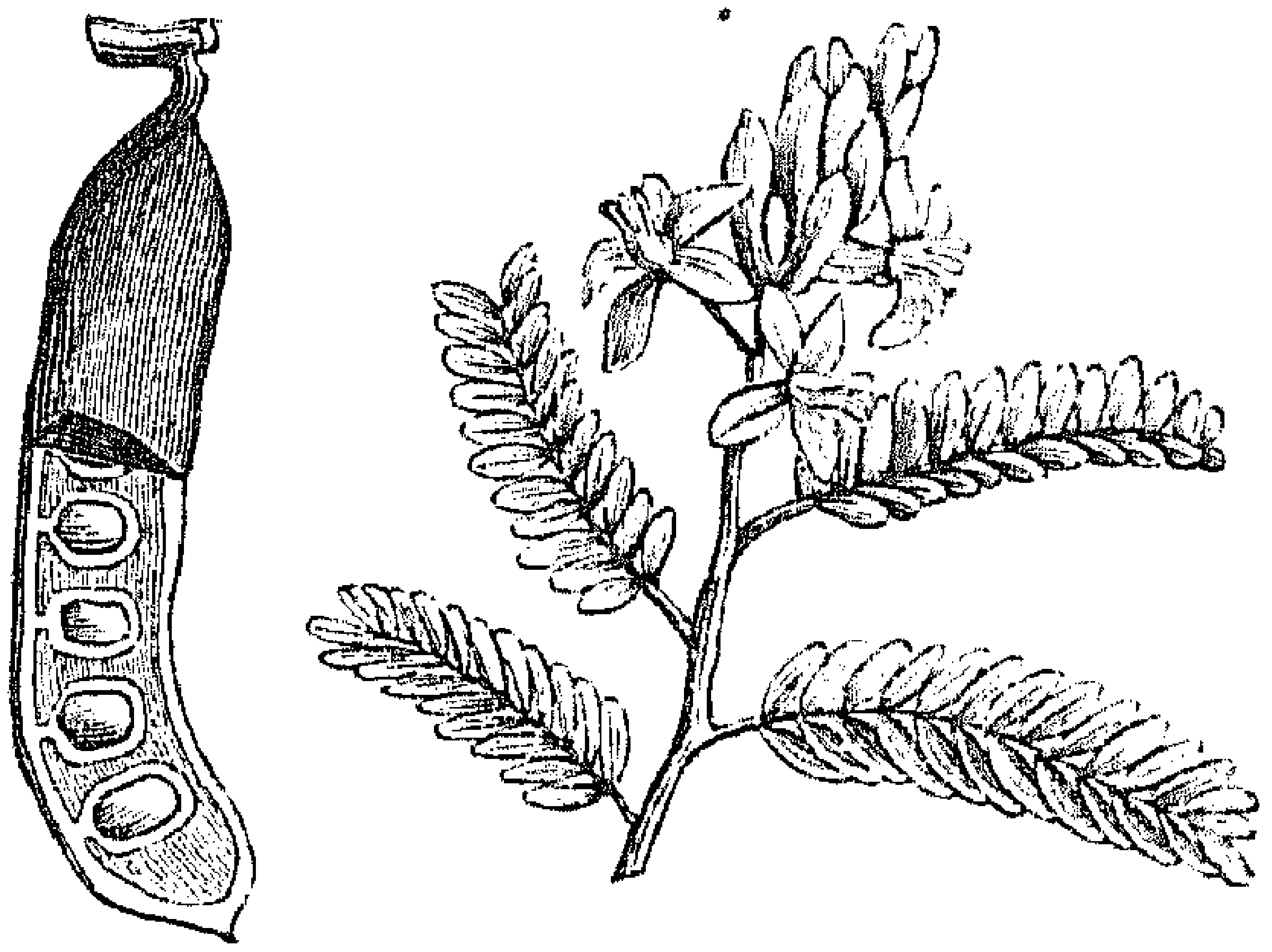
This is another fruit common to all tropical countries. In the southern part of this State, on both the eastern and western coasts, where it is cultivated and bearing abundantly, it is called SUGAR APPLE.

The fruit looks much like a Raspberry would of the same size, with its depressions as if quilted. It sometimes grows to be as large as a man's two fists, of a dark brown exterior. The pulp is of a reddish yellow color, about the consistence of custard, and exceedingly sweet. To some palates the Sugar Apple is very acceptable, while others object to it as being too sweet; "a sickening sweet."

The tree resembles somewhat our Black Haw, and is propagated from the seed. The fruit is entirely too delicate to bear transportation except very short distances, and even then the utmost care must be used. It is not likely to be cultivated to any great extent, unless on account of its ripening at a sort of odd time, when there is scarcely any other fruit.

TAMARIND.

Tamarindus Indica.



The Tamarind is a large leguminous tree, sixty to eighty feet high, and indigenous to many parts of Africa and India. It has been long naturalized in Tropical America, very common in Key West—growing in the streets as a shade tree—and other portions of Southern Florida.

Botanists assign but one species to the genus, and in this country there is only one variety that I can hear of, though there are three mentioned as belonging to India, viz: The Sour Fruited, the Sweet, or Sweetish Fruited, and the Red Fruited; and while the use of all is confined to preserving, the last mentioned, whose pulp is of a rose color, is much preferred for the purpose.

The leaves are compound, with ten to twenty pairs of small oblong leaflets, which form a dense shade.

The flowers are borne in racemes, and are fragrant; they are white at first, but soon turn yellow, with purple and brown stamens.

"The fruit is a legume or pod three to six inches long, straight or curved, thick, and with a hard, brittle exterior shell. The pods are indehiscent—do not break open when ripe. The seeds, ranging in number from four to twelve, are each surrounded by a tough, papery membrane, outside of which, and between it and the shell is a firm, juicy, very acid pulp—at least in the common kind, traversed by strong woody fibres, which start from the fruit-stalk, and run through, throwing off branches, to the opposite end of the pod."

The common Tamarind is prepared for market by first selecting fruit thoroughly ripe, which may be known by the increased brittleness of the shell; the shells are removed, they are packed in a cask and boiling syrup is poured over them until the cask is full; after becoming cool the cask is headed up, and is then ready for shipment. This is the common method practised in the West Indies. But a more desirable plan is to pack the fruit, freed from the shells, with alternate layers of sugar in stone jars.

Fruit put up according to the last method, is mostly done for private use, and rarely found for sale.

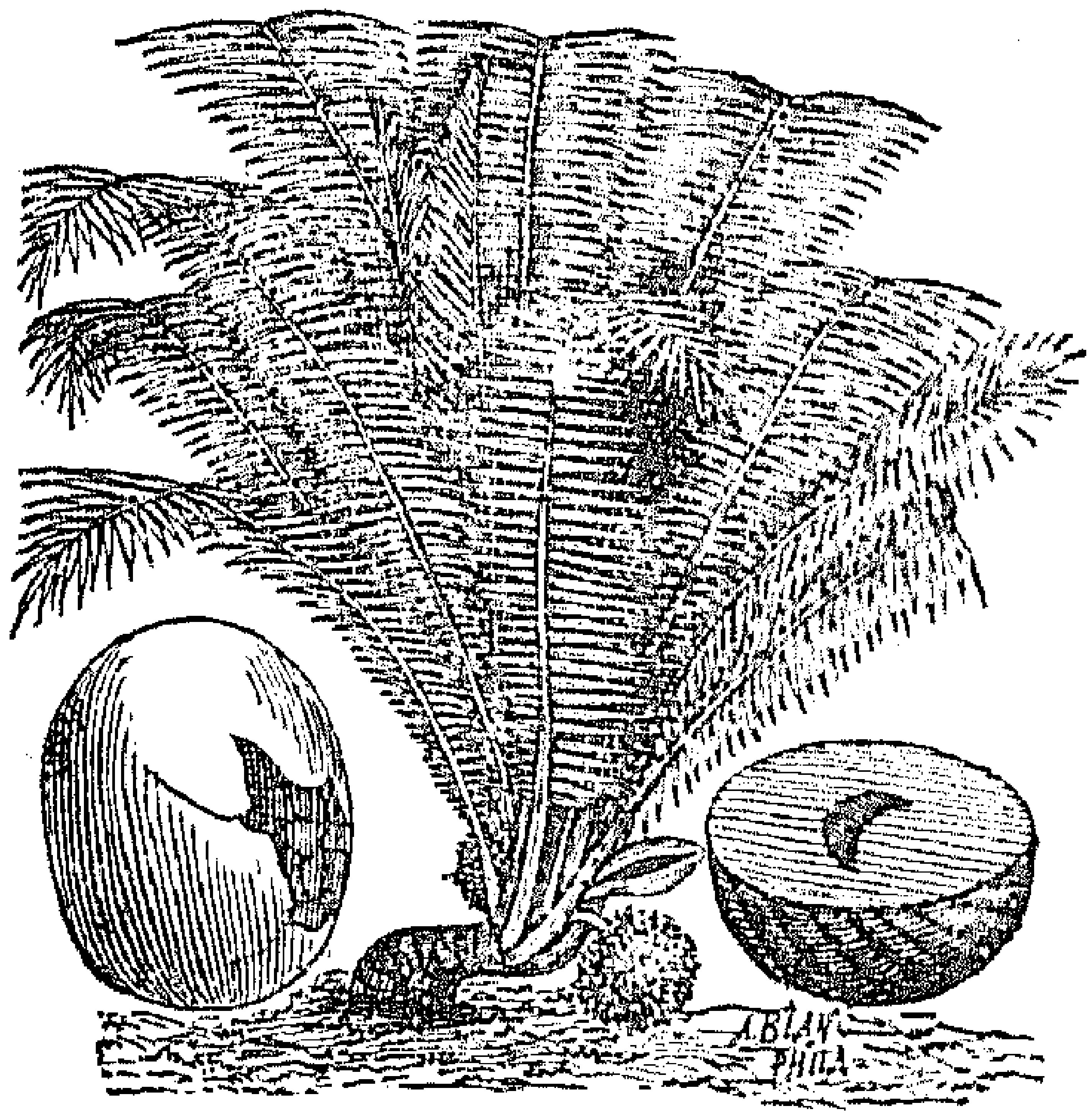
A drink is prepared by pouring boiling water over the shelled fruit, which is esteemed in tropical countries as a wholesome refrigerant, used in fevers; it also possesses a laxative property.

By boiling the preserved fruit with a small quantity of water and straining, the pulp is obtained pure, and is used in that form as an article of diet.

The Tamarind is raised easily from the seed.

IVORY NUT, or VEGETABLE IVORY.

Phytelephas Macrocarpa.



From the resemblance of this plant to some of the Palms in the general appearance and growth of its leaves, it was at one time classed by botanists as a member of the *palmaceae* family, but on account of an essential difference in the structure of the flower, it is now assigned to a separate order. It is a habitat of moist localities along the borders of water courses, in northern South America, and possibly in Central America and the West Indies. I have seen the nut strewed along the beach between Jupiter Inlet and Cape Florida, carried there by ocean currents from more southerly shores.

In its native lands it is found in thick groves to the exclusion, commonly of all other trees and shrubs. Its habits of growth are not unlike those of the Saw Palmetto in wet places. The trunk or stem "creeps along the ground for twenty feet or more, and then ascends, the upright portion being seldom over four to six feet high, and terminated by a crown of twelve or more pinnatified leaves, eighteen to twenty feet long.

"The flowers are dioecious, the male plant taller and more robust than the female, and its flowers in pendulous spikes five or six feet long; the female flowers are in bundles of six or seven, on short, thick erect peduncles, both kinds emit a penetrating almond-like perfume very attractive to bees.

The fruit is a collection of six or seven drupes (stones), each containing seven to nine seeds; these drupes are aggregated in a mass something like a rounded cone, its exterior being formed of the crustaceous covering of the drupes, which is rough, with woody protuberances.

"Each mass weighs about twenty-five pounds, and there are six to eight to each tree; these are called by the South Americans *cabezas de negro*, or negro heads.

"The ovoid nut is about as large as a hen's egg, with a blunt prominence at one side showing the point of attachment, and often more or less flattened and angled by mutual compression; the *testa* or outer covering of the seed is hard and brittle, and within is the copious, white, ivory-like albumen. In their earlier state the seeds are filled with a clear, tasteless liquid, which after a time becomes milky and sweet, and gradually acquires greater consistency, until at length it is nearly as hard as ivory." Animals and birds are very fond of it while soft.

It is exported in large quantities to this country and to England, and used in the manufacture of cane heads, buttons, etc.

NUTMEG.

Myristica Fragrans.

The tree producing Nutmeg is from twenty to thirty feet high, and is thought to resemble a Pear tree. It is found most plentifully in the islands of Asia, though it is also indigenous to Tropical America.

The leaves are "petioled, and alternate, five or six inches long, oblong, acute at the apex, entire, dark green, somewhat shining above and whitish beneath."

"The tree is dioecious, but except when in flower, the two sexes are not distinguishable."

The fruit is pear-shaped, or nearly spherical, about the size of the peach, and consists of a fleshy pericarp or capsule, which at maturity breaks open into two nearly equal valves, and exposes the contained seed and its appendages; this exterior portion of the fruit is about half an inch thick, of a yellowish brown color, and has an astringent juice; in collecting the crop this is thrown away as useless, but in its young state it is sometimes made into a sweetmeat with brandy and sugar.

The tree bears in eight years from the seed, reaches its maximum in fifteen, and continues to bear for seventy to eighty years. The average yield per tree is five pounds of nutmegs and one and a half pounds of Mace—the substance enveloping the seed and also a valuable export.

So desirable an exotic should have a trial in our State.

PISTACHIO NUT.

Pistachia vera.

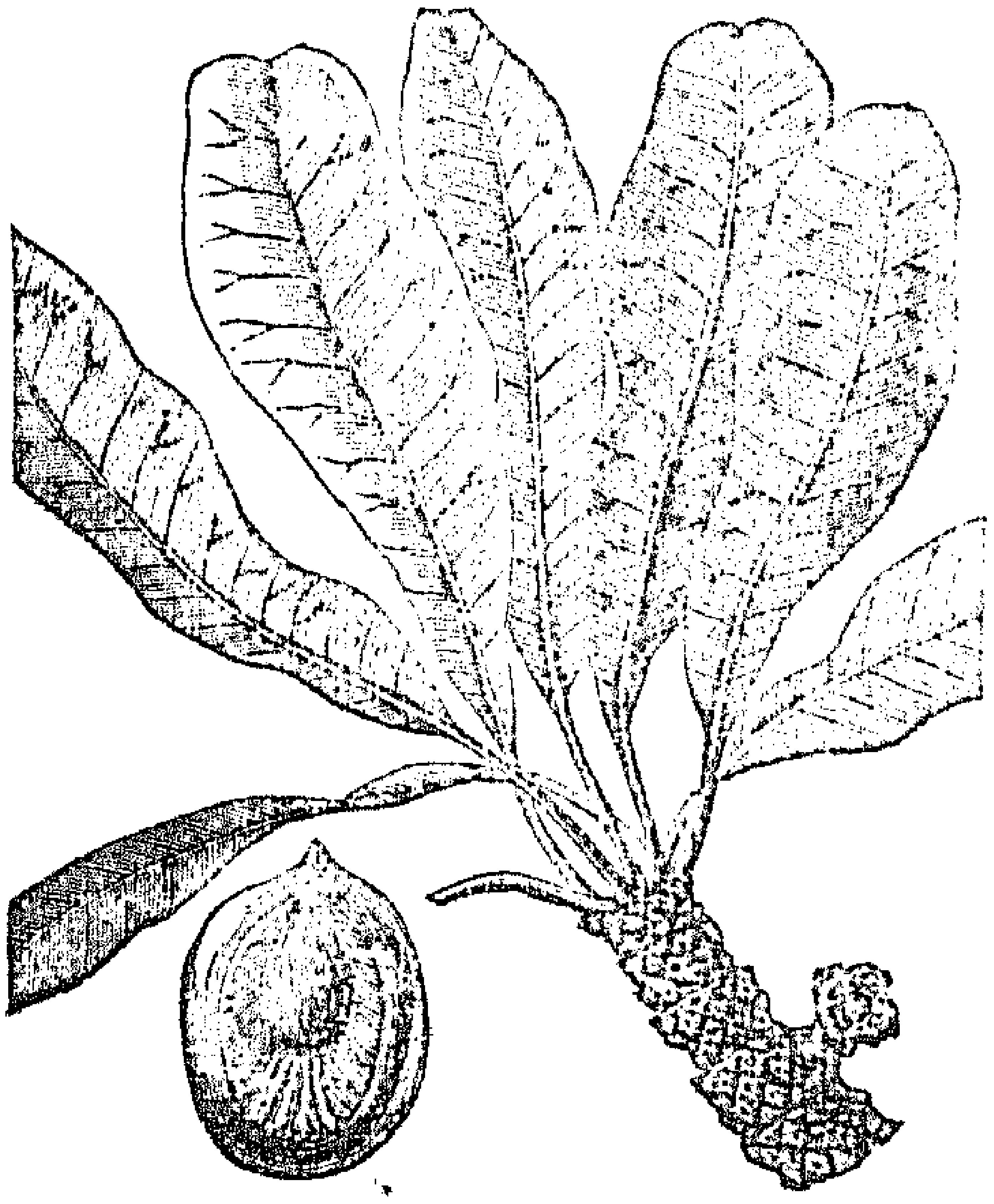
The Pistachio tree is "a native of Western Asia, and is generally cultivated in Southern Europe." It is usually "twenty to thirty feet high, its leaves with three or five leaflets; the small flowers are dioecious, the males in close clusters, and the females in a loose raceme; the fruit is a sort of dry drupe about the size and shape of an Olive, the exterior portion somewhat woody and enclosing a seed which is known in commerce as the Pistachio Nut. The seeds are irregularly oval, about an inch long, of a reddish green externally, and within of a bright green, exceedingly pleasant to the taste, and in the countries where they grow, largely eaten as a luxury." Indeed it is alleged, that the scant supply ever seen in market, is owing to the extravagant partiality to them by the Turks and Greeks. European confectioners use them in place of Almonds in making sugar plum candy.

There is also found in their cotyledons a harmless green coloring matter, which is preferred to spinach juice by confectioners and pastry cooks "to color ices and similar articles." The nut is also said "when fried in butter to form a delicious addition to the dessert."

"The tree is hardy in England in sheltered places, and in favorable portions of France." It would without doubt it is believed "succeed in our Southern States," and particularly in Florida.

BUTTER TREE.

Bassia.


THE SHEA TREE, (BASSIA PARKII), OR AFRICAN BUTTER TREE.

This is a genus of *Sapotaceæ*, to which belongs many delicate and valuable fruits. Among which may be mentioned Sapodilla, Star Apple, etc. We learn from the American Cyclopædia that "the Indian Butter; *fulwa*, or *phulwara* tree (*Bassia butyracea*) grows wild on the Almora hills in India, the tree often measuring fifty feet in height and five or six feet in circumference, with broad oval leaves, from six to twelve inches long, large pale yellow blossoms and pulpy fruit about the size of a pigeon's egg, containing two or three roundish brown seeds. The fat expressed from the seeds, of the consistency of lard, is white, will keep for months, and is used as a substitute for animal butter.

The Indian Oil or Illupic tree (*Bassia longifolia,*) similar to the above, grows in plantations on the south coast of Coromandel, and the fruit by pressure yields an oil used by the natives for soap, in cooking, and in their lamps. The wood is hard and valuable.

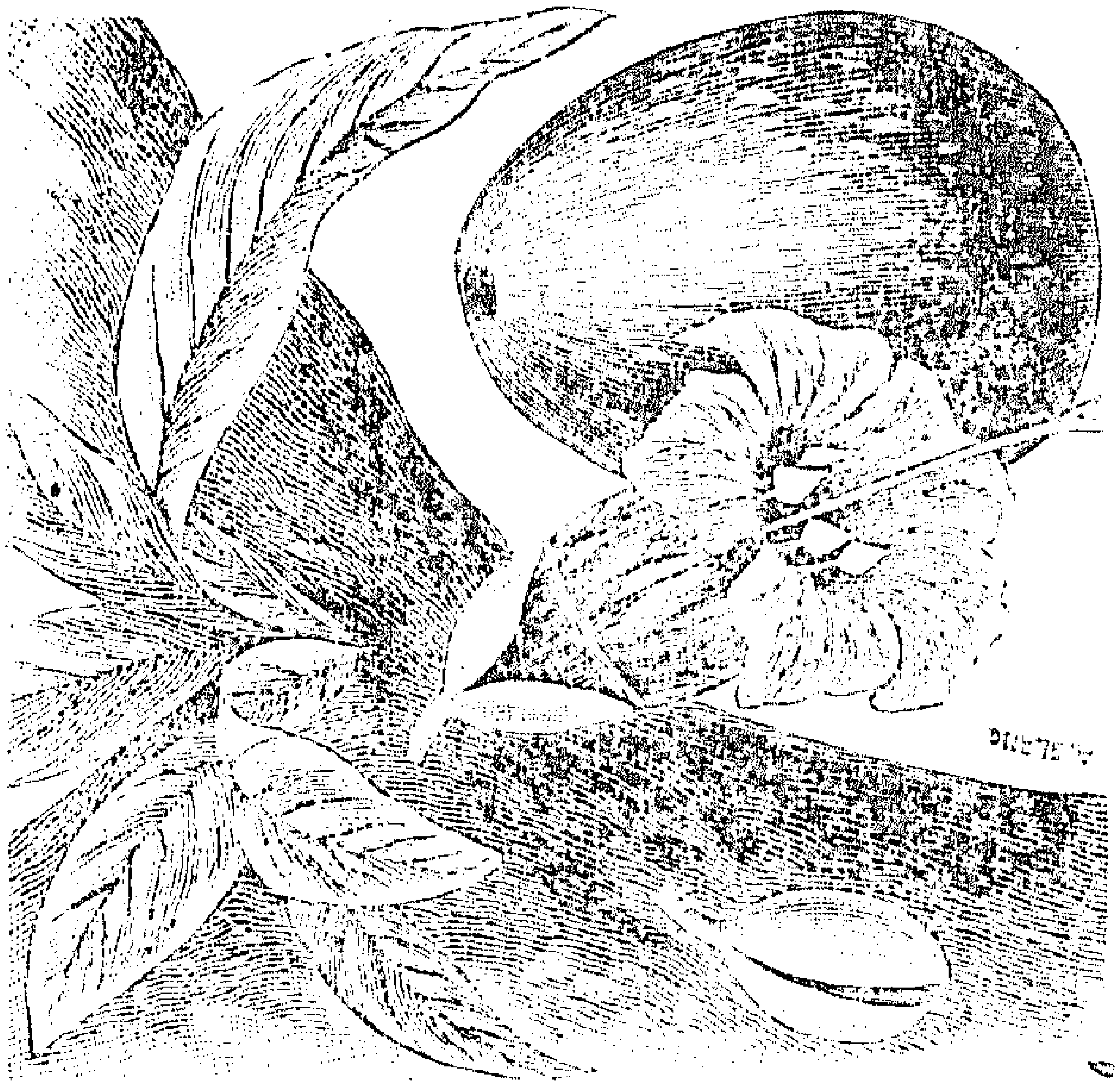
The MAHIVA, MADHACA, or MADHOOKA tree, *B. latifolia*, native of the mountainous parts of Bengal, furnishes a hard, tough wood; the flowers distilled afford a strong, intoxicating liquor, and from the seed is expressed a greenish yellow oil used in lamps.

The SHEA TREE, or AFRICAN BUTTER PLANT (*B. Parkii*), is not cultivated but grows naturally in great abundance in the equatorial part of Africa. The fruit resembles the Spanish Olive, and from the kernel, dried in the sun and then boiled in water, is extracted a sweet, white, firm butter, which will keep for a year without salting.

All of the above species are of easy propagation from seeds, by importing which we can test their adaptability to our climate at a trifling expense. In selecting for experiment, the hardiest and smallest growing kinds should be chosen. Though the natural effect of so distant a translation would induce a more diminutive growth.

CALABASH TREE.

Crescentia Cujete.



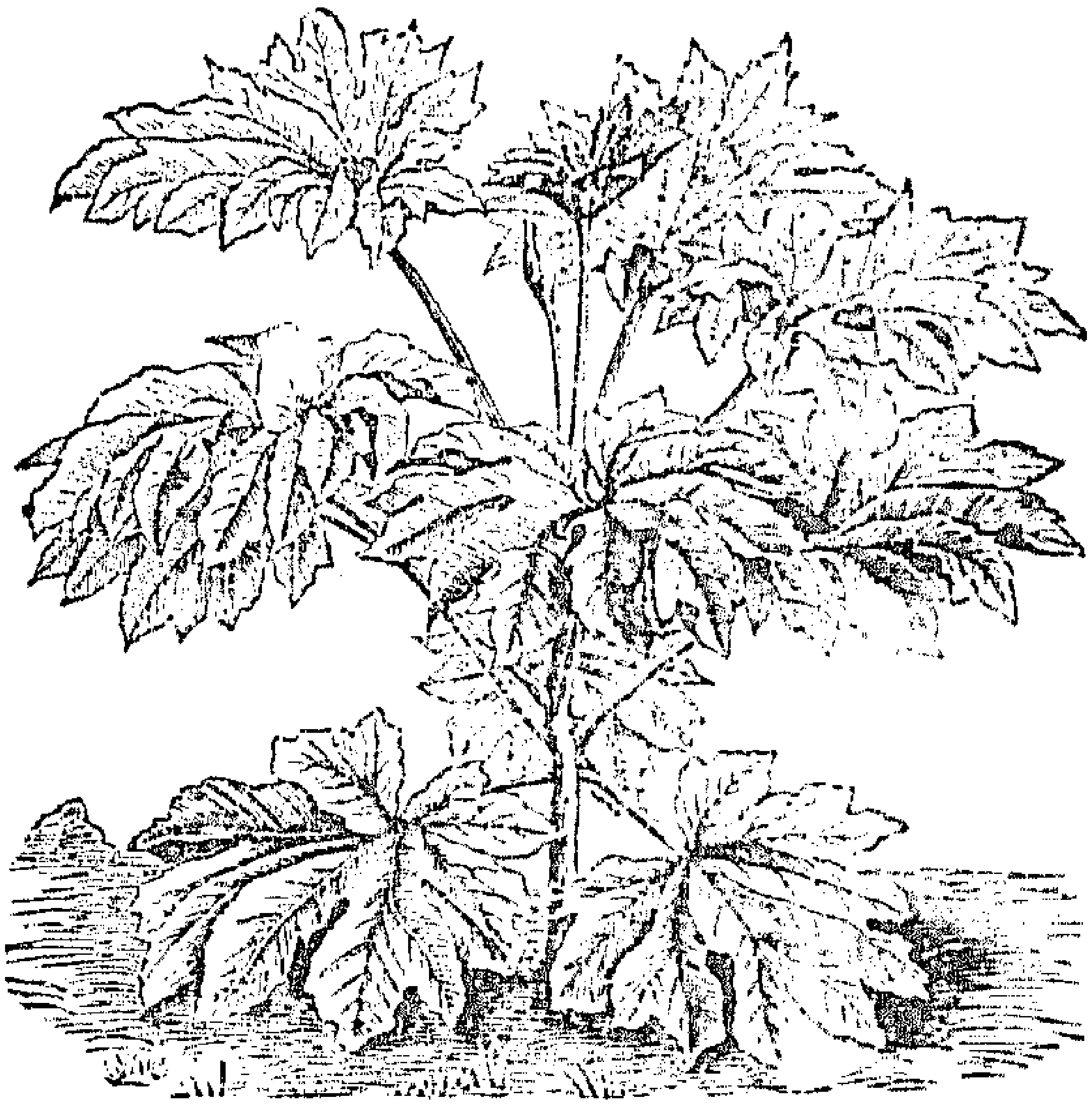
This tree is found generally in the tropical regions of America, and could be grown it is believed, in this State. The great number of uses to which it may be applied, renders it almost indispensable to the uncivilized tribes. The shell of the fruit is quite thin, but very hard, and furnishes the natives with a variety of domestic utensils, such as cups, bowls, goblets and even kettles for cooking. For these shells "are so hard and cross grained, that when filled with any fluid, they may be put on the fire and used for cooking like vessels made for the purpose. They are also cut and carved—variously stained, and polished as ornamental vessels."

The tree is described as being "about the height and bulk of the Apple, with crooked horizontal branches, along which, and the trunk, its wedge shaped leaves and pale white flowers spring forth."

The fruit is roundish, and varies in size from a few inches in diameter to a foot or more.

The pulp is not eaten, but is highly esteemed for the medicinal properties it is said to possess.

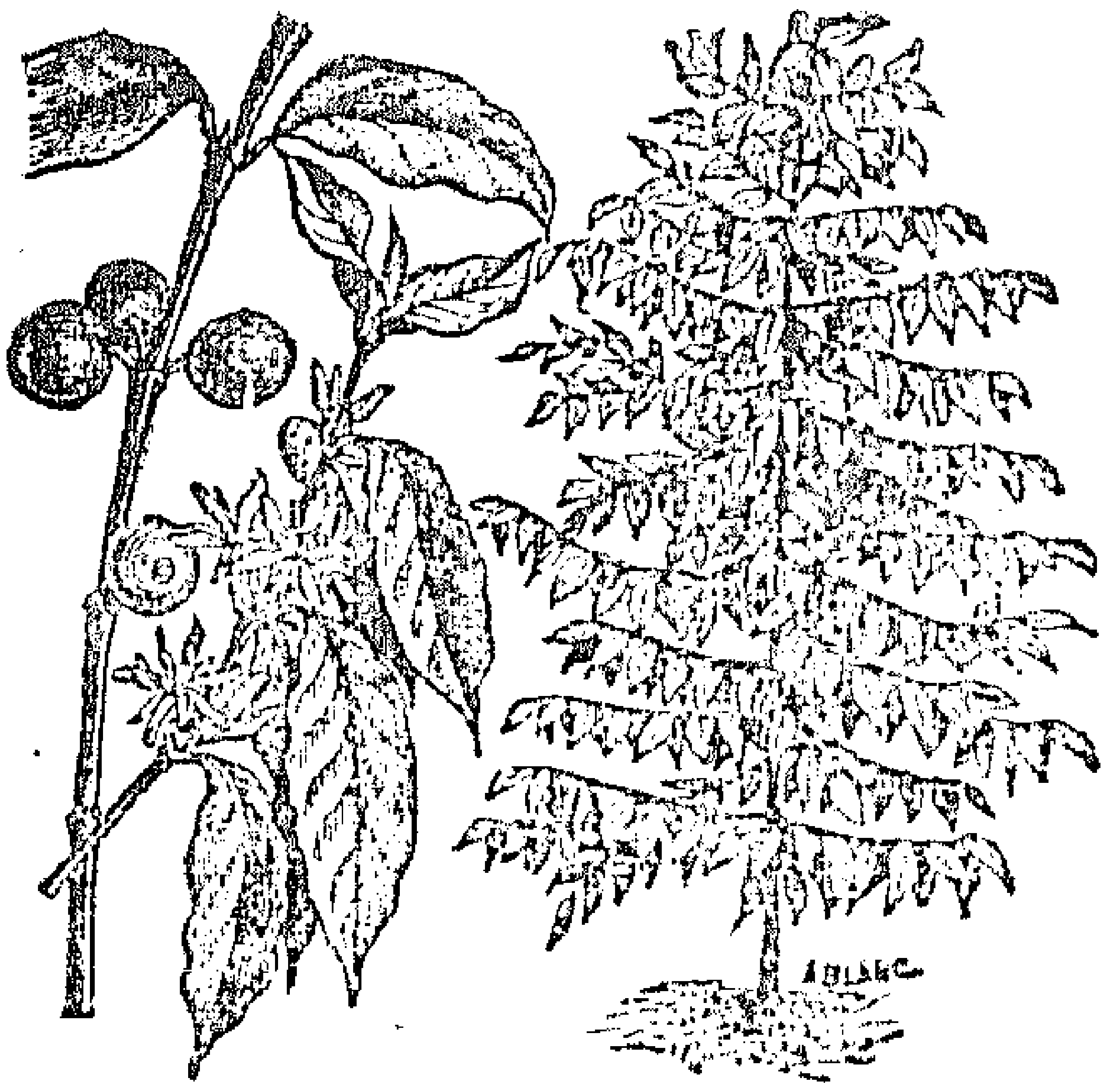
RICE PAPER TREE.



The true botanical name of this curious tree is *Fatsia papyrifera*, as established by Decaisne and Planchon, and not *Aralia papyrifera*. It is thus described in the American Cyclopædia: "The tree is a native of Formosa, rarely growing more than twenty feet high, and branching above. The young stems, leaves and inflorescence, are covered with a copious down of stellate hairs; the leaves on long petioles are often a foot across, round, heart-shaped, and five to seven lobed. The flowers are small and greenish, and are produced in pendulous panicles, one to three feet long at the end of the branches. The plant has such ample leaves, and so stately an aspect, that it is a favorite in sub tropical planting. A single young and vigorous specimen as a center to a bed of lower growing plants, produces a fine effect. The vigorous stems have a pith which is an inch and a half in diameter, and of a snowy whiteness. After the woody exterior is removed, the Chinese cut the pith into sheets by paring with a sharp knife from the circumference towards the center, unrolling it as it were, and then flattening it out and pressing it under weights until dry, when it remains as a flat sheet." In that state it is imported, some, however, comes in the stem, to be used in the manufacture of artificial flowers. It is the material more generally known as Rice Paper, on which "beautiful paintings of flowers and insects brought from China were executed."

It is quite hardy enough to be grown in the open air in many parts of Florida.

COFFEE TREE AND FRUIT.



The Coffee plant belongs to the order *Cinchonaceæ*. The name Coffee is supposed to be derived from *Kaffa*, a district in Africa, south of Abyssinia, where it grows wild and in great profusion. It is widely extended as a cultivated plant, and is found in the West Indies, Central America, South America, notably in Brazil, Guiana, Peru and Bolivia; in Java, Ceylon, the Western Coast of India, Arabia, and several of the Pacific Islands. The range of its successful culture is from the 25th parallel, or thereabout, of North, to the 30th of South latitude. It is produced at an altitude of 6,000 feet above the level of the sea, and thrives best where the temperature does not go much below 55° Far.

The Coffee tree is propagated from the seed. The plants are kept in nurseries until one year old, when they are transplanted to the field and set out in rows of convenient distances. At three years old they begin to bear, but do not reach the maximum of production until the fifth year.

The flowers are pure, snow white, they come in thick clusters around the branches, and in contrast with the dark green polished leaves present a most beautiful appearance. By pruning, the Coffee plant is somewhat dwarfed, restricted to a height of eight to twelve feet, sometimes though it reaches fifteen feet or more. The fruit resembles a cherry, of a red color when ripe, and the flesh surrounding the two seed usually found—having their flat surfaces opposite—is said to be sweet and palatable. When for some cause one of the seed fails the other becomes entirely round. "As the fruit dries, the pulp forms a sort of shell or pod, which is removed by a process of curing in order to prepare the seed for market. In the West Indies the fruit is picked by hand at intervals during the season of harvest, but in Arabia, where no rains prevail which would beat it from the trees, it is allowed to remain until ready to fall, and is then shaken off upon cloths spread upon the ground." This is supposed to give to the famous Mocha Coffee, which is considered to be the very best, its chief excellence.

Coffee sufficient at least *for home use* may be grown in the southern portion of our Peninsula, and for this purpose seed of the Mocha, which is small, and of a dark yellow color, should be procured from the Province of Yemen in Arabia, its home. As an ornamental evergreen, the Coffee tree would be an acquisition to any grounds. The natives of Africa prefer using the roasted leaves in lieu of the berry.

TEAK.

Tectona Grandis.

This East Indian tree is remarkable in several particulars; and is worthy of a place, should its introduction be practicable, among our most useful timber trees.

It is represented as one of the most magnificent of trees; attaining the great altitude of two hundred feet, grand and stately in its symmetrical proportions.

The leaves are elliptical in shape, measuring from twelve to twenty-four inches in length, and so rough as to be a fair substitute for emery, in polishing wood.

The flowers are "small, white, and fragrant," they appear in terminal panicles, having the structure of the family *verbenaceæ*, to which the Teak belongs.

For ship building it is said to have no superior in the world, not even excepting our own highly-prized Live Oak. The wood is very hard, and consequently heavy, and of unequalled strength and durability; instances of its having been in use for a century without decay are recorded. The tools employed in working it soon become dull from the large amount of silex it contains. The wood is of a brownish color, permeated by an oil which even in a green state prevents the iron nails or bolts from rusting, thus dispensing with the necessity of using the more costly copper nails. A cubic foot of the wood weighs from forty-two to fifty-two pounds.

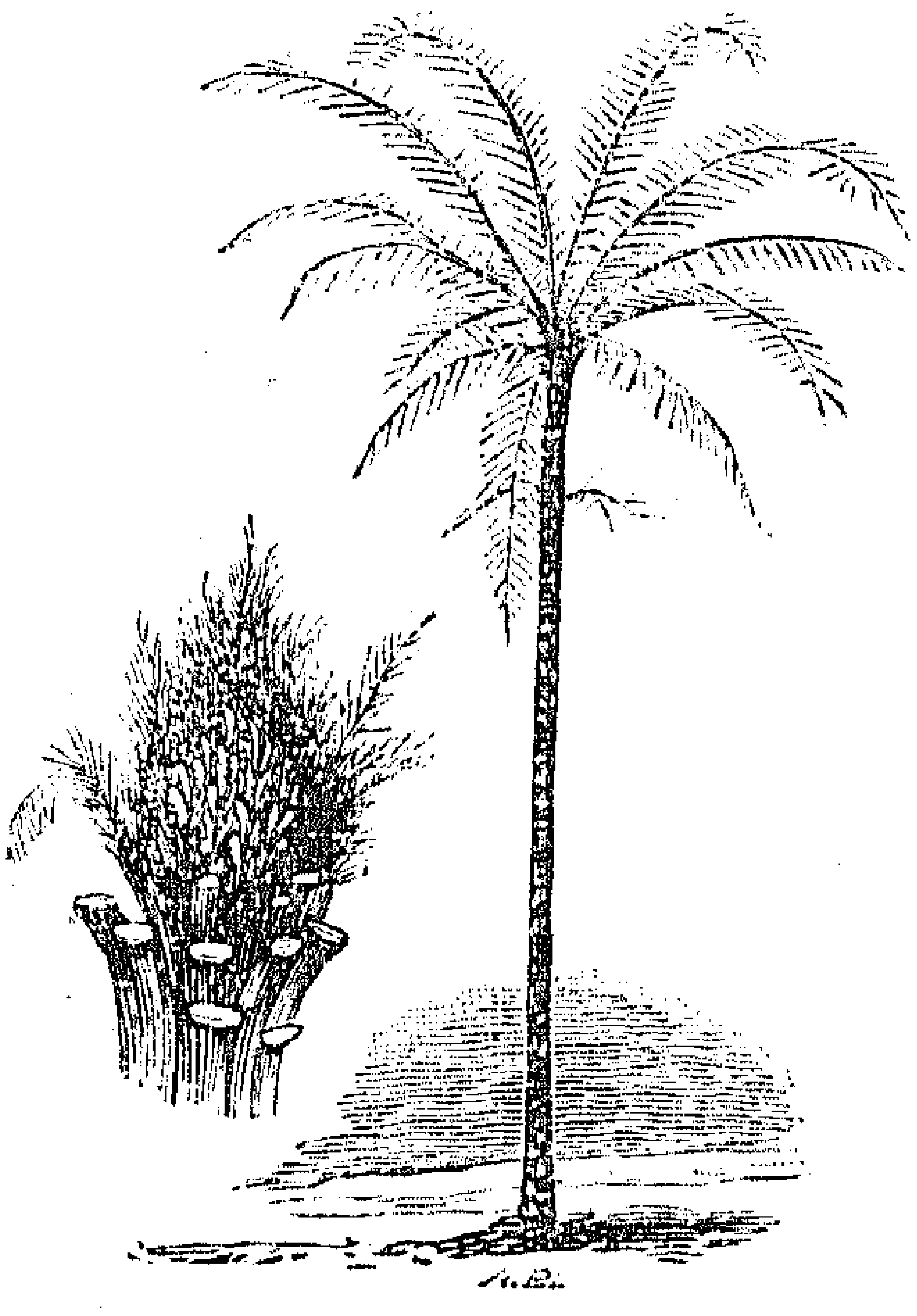
PALM.

Palma.

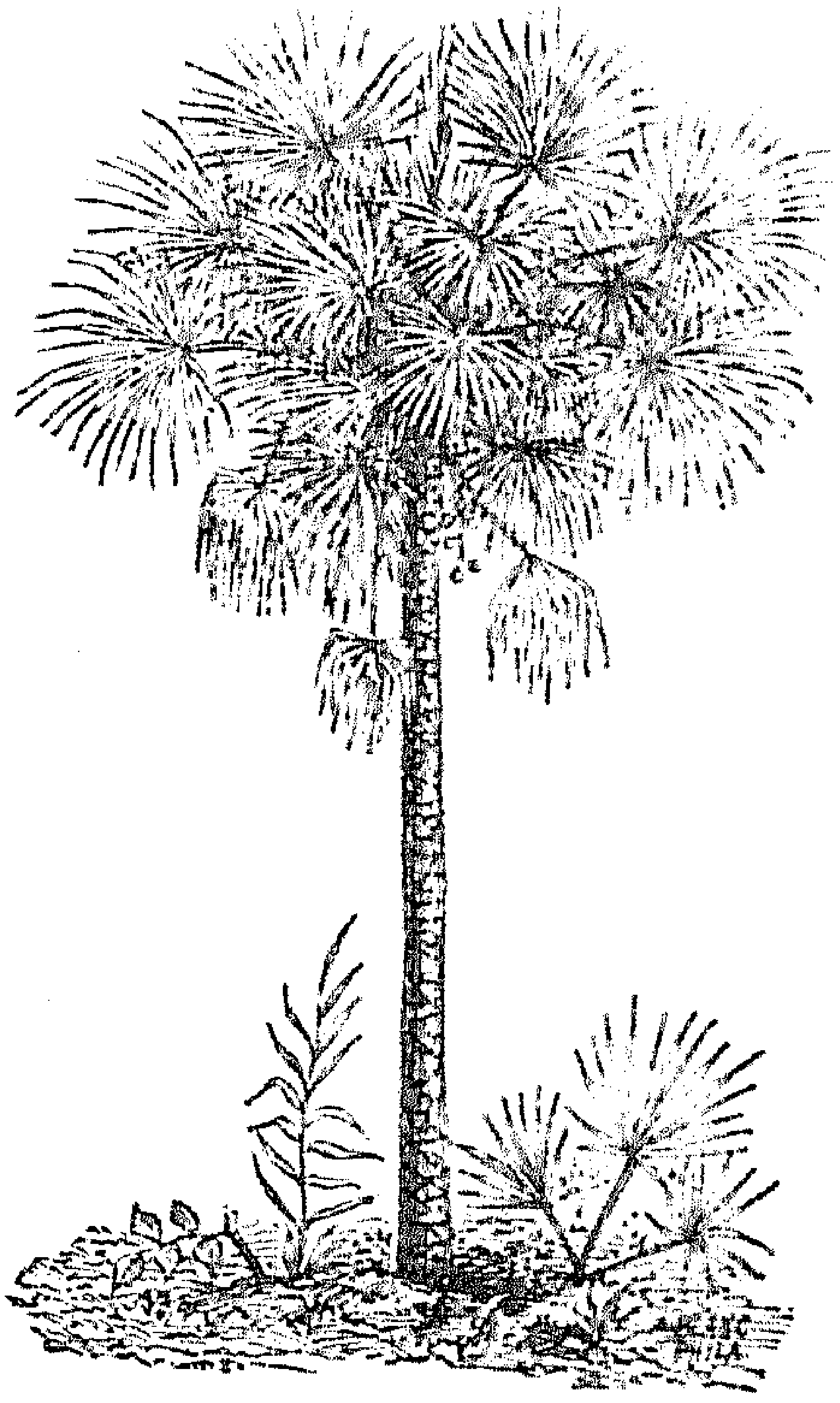
Of all the trees or shrubs capable of production in this inviting land of health and beauty, the *Palmaceæ*, or Palm family stand pre-eminent, both for ornament and utility; for general usefulness they are ranked next to the grasses.

There are, it is said, nearly one thousand species of Palms belonging to fifty genera, and these are grouped into five well marked tribes, or sub-families, according to their affinities.

Under the name Palmetto are four species of Palm indigenous to two or three Southern States. The tall or CABBAGE PALMETTO, SABAL PALMETTO, is the largest species, attaining in this State, as is well known, to the height of sixty to eighty



CABBAGE PALM.



PALMETTO.

feet, and a diameter of twelve to fifteen inches. The terminal bud furnishes the vegetable which gives the species the name *Cabbage*. Boiling for three or four hours, changing the water several times, and then fried in butter with crumbs of bread, it is a very palatable dish, yet the sacrifice of so noble a tree for a savory dish can scarcely be justified, unless demanded by necessity, or when the tree is required to yield its place to something better.

The second species is the SAW PALMETTO, *Sabal Serrulata*, "so called on account of the sharp spiny teeth along the edges of the petiole, having a creeping stem (usually called the root, but really the trunk) from four to ten feet long, from which arise leaves two to four feet high."

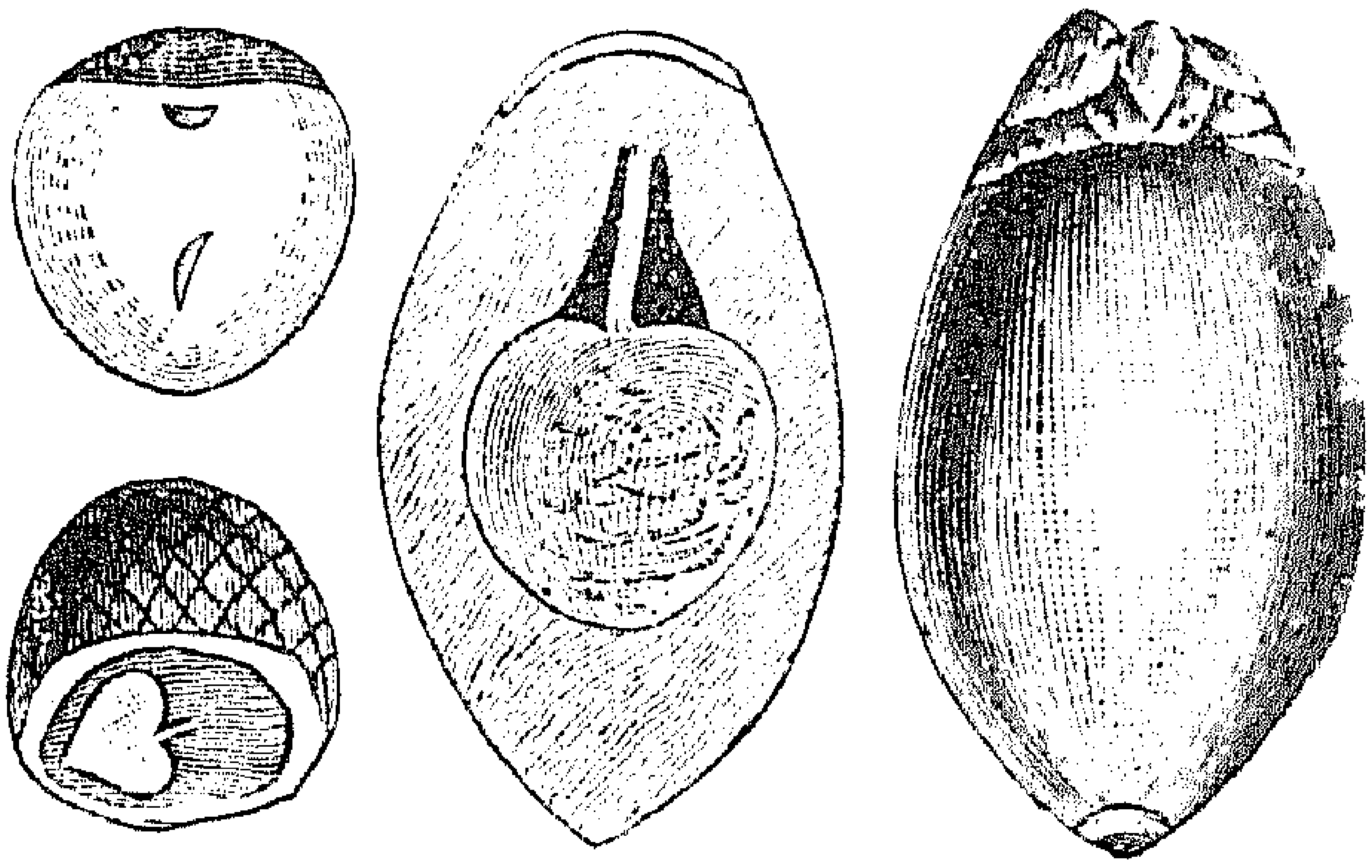
The third species is the DWARF PALMETTO, *Sabal Andersonii*, "has its short stem wholly underground, and leaves two to three feet high."

And there is the BLUE PALMETTO, *Chamærops hystrix*. "This has a creeping stem with somewhat glaucous leaves, three to four feet high; at the bases of the leaves are numerous erect strong spines, like porcupine quills, which serve to distinguish it from the other Palmettos. It prefers a richer soil than the preceding and is often found in moist shady woods, and on the margin of swamps."

Besides these species, common to every section of the State—though the CABBAGE is confined to the coast region in the northern and western counties—is another, found only in the extreme south, and called ROYAL PALM. Never plentiful, it has been so much sought after for making walking canes, etc., that but few are left. This Palm, from even an unsatisfactory view of a single specimen as it towered aloft in its native swampy fastness, near the shores of Biscayne Bay, surpassed in majestic beauty anything of the kind I had ever seen. The exterior of the trunk of this endogen is similar to the Cabbage or Cocoanut Palm, and the length of the leaves is about the same as the latter, seven to ten feet or more, but in the Royal Palm from the center rib, the leaf is split into ribbons as if with a fork, and the long, silvery-green fringe, waving gracefully to the gentlest breeze, presents a scene of rare loveliness.

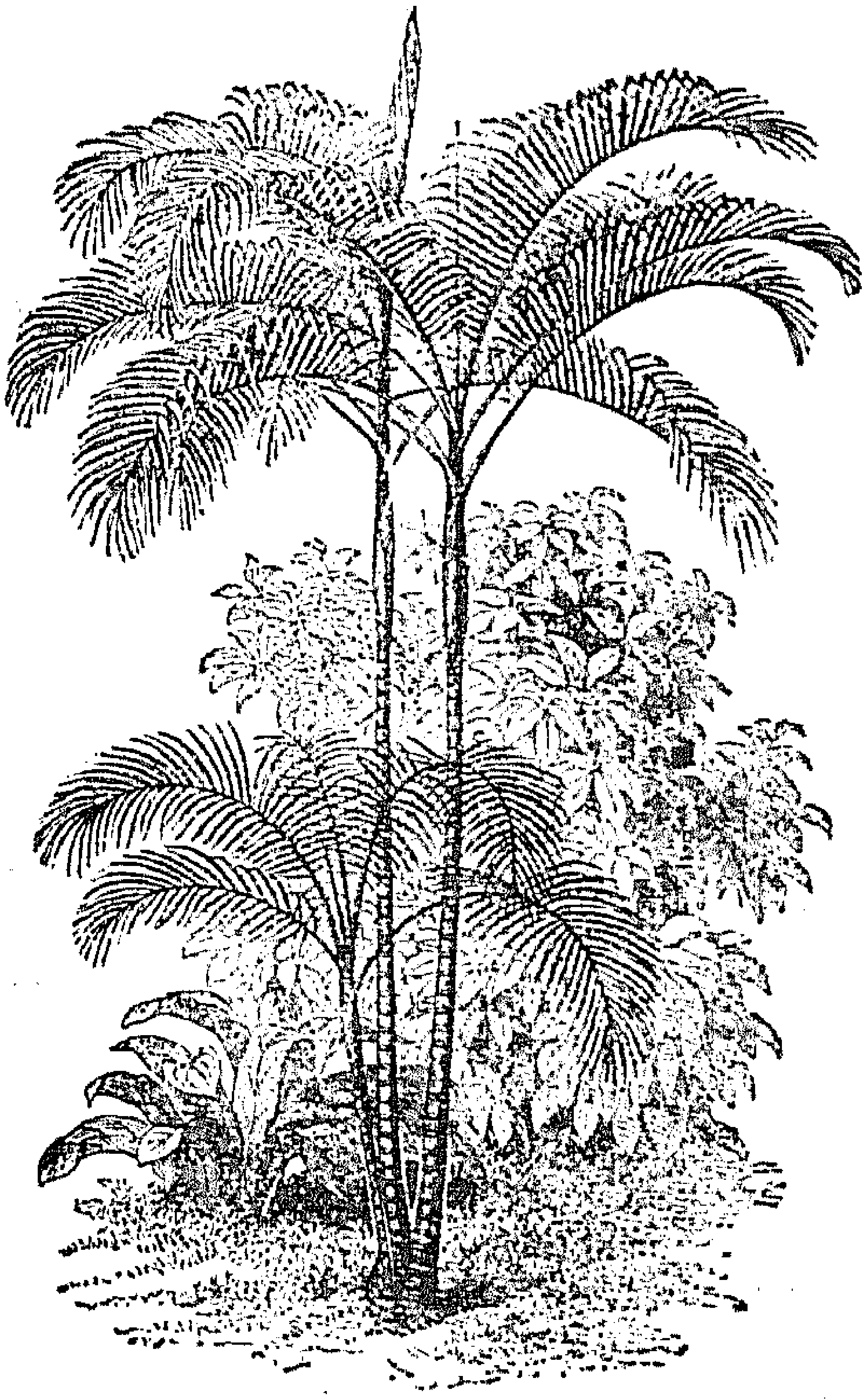
The SAGO PALM as seen in green-house collections—or in this State in flower gardens—*Cycas revoluta*—although possessing considerable starch, does not produce the sago of commerce.

There are two distinct species of the true SAGO PALM—*Sagus laevis*, the Smooth, and *Sagus Rumphii*, the Prickly ; both natives of the Indian Archipelago. "The smooth species grows from twenty-five to fifty feet high, while the other, which differs mainly in having its leaf-stalks and the spathe or sheath to the flower cluster armed with sharp prickles, is rarely over thirty feet. Both have graceful crowns of large pinnate leaves, and a one-seeded fruit an inch and a half in diameter, covered with shining reversed scales. Left to themselves the trees attain their full growth in fifteen years, flower, produce their fruit, which is about three years in coming to perfection, and then die."



FRUIT AND NUT OF BETEL PALM.

"The BETEL NUT PALM, *Areca Catechu*, also known as Areca Nut, and Catechu Palm, and called *Pinang* by the Malays, is a large tree growing tn India, Ceylon, and the Moluccas. It has very fragrant flowers which are used in Borneo for decorating, and a drupe-like nut about the size of a hen's egg, with a fibrous rind half an inch thick ; the seed is about the size of a nutmeg, which it also resembles in the mottled appearance of its albumen. The nuts are very astringent; by boiling in water and evaporating the decoction, a form of catechu is obtained."



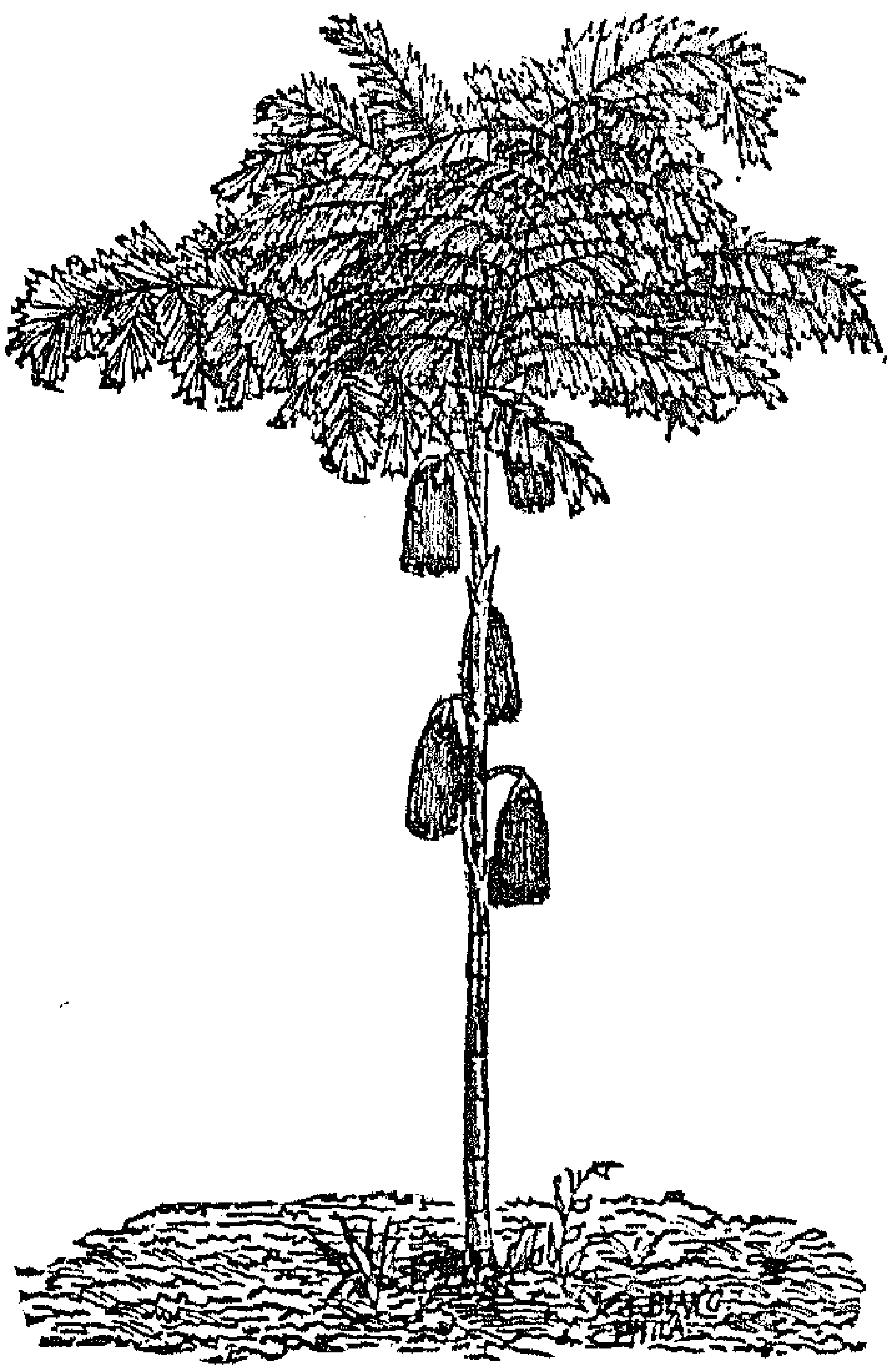
ARECA LUTESCENS.

The species *Areca lutescens* is a pretty specimen of the Areca family, adapted to pot culture. From the early decay of the primary roots, and the compact mass of secondary, the plant seems to be supported by props.

"Several species of the South American genus *œnocarpus* have fruits with an oily flesh, and the oil obtained from them is used for cooking and for lamps. It is said to be mixed with olive oil in Para as an adulteration. The stiff nerves of the leaves of these Palms furnish the Indians with arrows for their blow guns, which are made by boring the leaf stalks of other Palms of this tribe.

The TODDY PALM, *Caryota urens*, a native of India, derives its name from the wine and sugar made from the flower spikes. The tree is said to be large and very beautiful; from the leaves is obtained a fibre of great strength, called kittul, out of which mats and ropes are made. The trunk also yields sago.

"The species of this genus are favorites in cultivation, as this is one of the few with bi-pinnate leaves. When the tree has completed its growth the flowers are produced in drooping tassels; a flower cluster is produced at the base of the uppermost leaf, then one appears at the next lower leaf, and so on, until the lowermost leaf has produced a cluster from its base, when the plant dies."

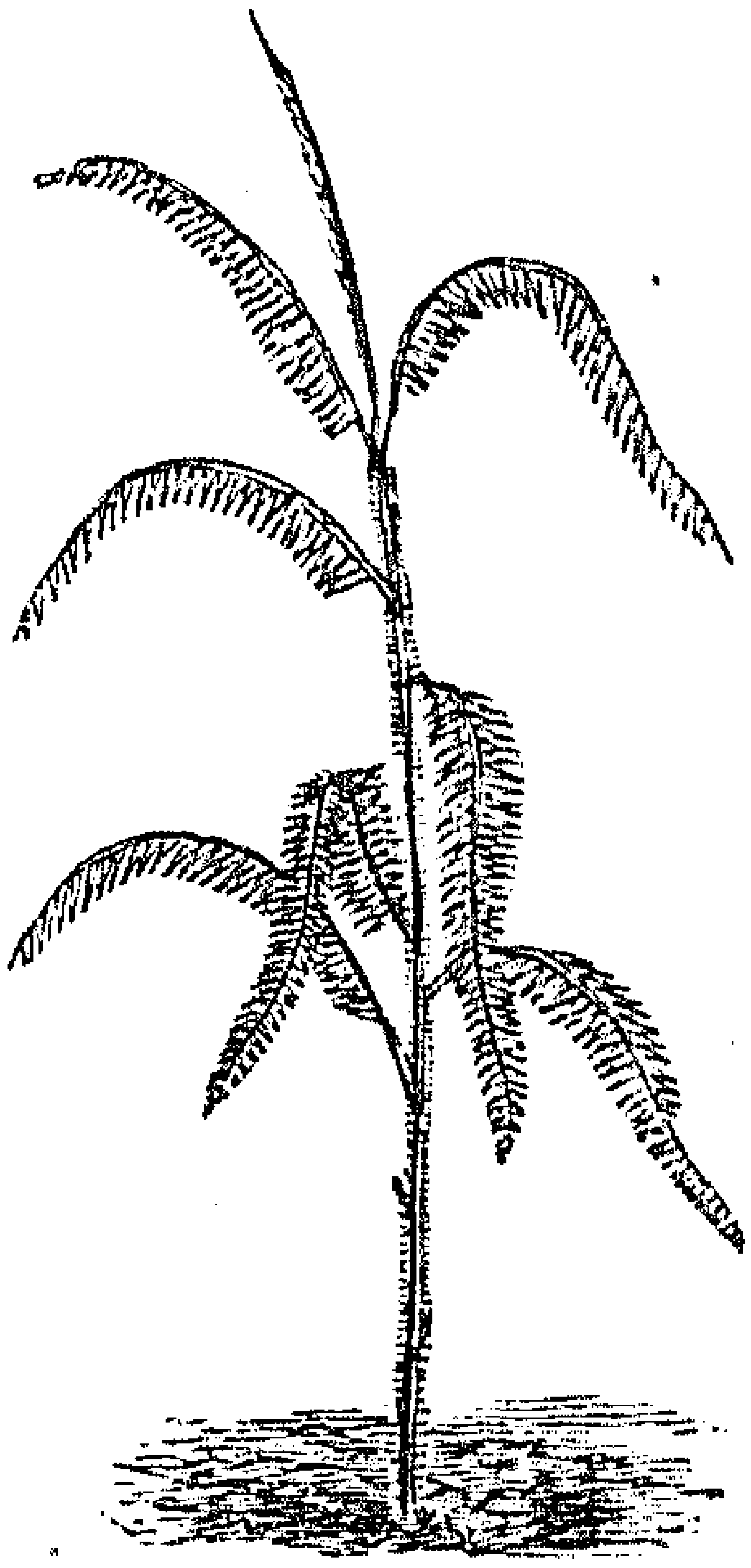

TODDY PALM.

"The WAX PALM of Colombia, *Ceroxylon Andicola*, is a lofty tree growing in elevated regions. It is remarkable for its swollen trunk, which is larger in the middle than it is above or below, and is covered with a whitish wax-like substance, which is collected by felling the tree, and scraping. The product of each tree is about twenty-five pounds. It consists of a resin and a wax, and though too inflammable to be used by itself, it makes good candles when mixed with tallow."

Of the smallest Palms is the CALAMUS tribe, *Calameæ*, consisting of "Sarmentos, or runner-like plants, and some trees; the pinnate or fan-like leaves are often terminated by a long appendage which is furnished with hooks." * *

"They are known as RATTAN and CANE PALMS, the stems of several being found in commerce under these names. Some are low bushes, while others, with stems seldom over an inch thick, climb to a great distance over trees to which they cling by means of the hooked spines upon their leaf stalks. * * Rumphin's statement that they grow from 1,200 to 1,800 feet long has not been verified, though it is not rare to find them 300 feet long."

The strength of the stems of these Palms is said to be remarkable, which quality, combined with their great length, renders them useful for ropes for catching elephants, cables for vessels, etc. "In the Himalayas, the stems are used for building suspension bridges."



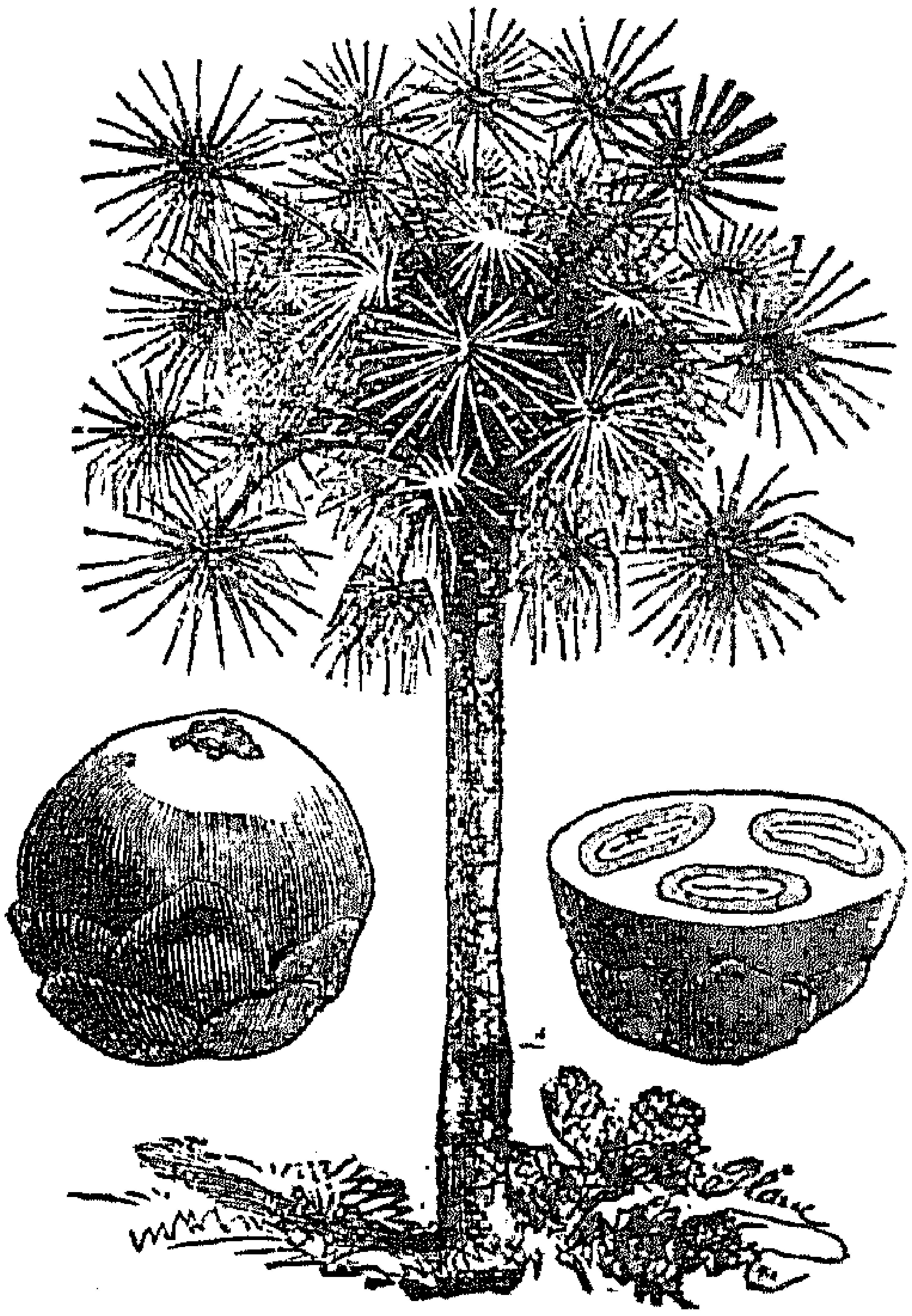
RATTAN PALM.

The flowers are "rose-colored, or greenish, and come in long, branching spikes. The fruit consists of a single seed, surrounded by an edible pulp, which is enclosed by a covering of slimy scales."

"The Rattans of commerce are afforded by *Calamus rotang, Calamus verus, Calamus rudentum* and others, they are cut twelve or sixteen feet in length, once doubled and made into bundles of one hundred each; immense numbers of these canes are imported into Europe and America, and as new uses are constantly found for them, the consumption rapidly increases; the ease with which they are split, and the strength of very small splints, adapts them to a great variety of wares."

They are used in making articles of furniture, settees, sofas, lounges, chairs, in bottoming chairs; carriage and buggy bodies are also constructed of Rattan. Malacca canes, so highly esteemed for walking sticks, are the stems of *Calamus Scifionum*; the joints are so far apart that a good cane may be made from a single internode. The rich reddish brown color is due to their being smoked and varnished with the bark on.

Calamus Draco, a species which some botanists place in the genus *dœmonorops,* is said to furnish a portion of the resinous drug known as dragon's blood. "The remaining genus of this group, valuable for its products, is Mauritia, the Moriche or Ita Palm of tropical South America. *M. flexuoso,* especially abundant on the Amazon and other rivers, supplies nearly all the wants of the natives; during the great inundations they even suspend their dwellings from the trunks, the skin of the young leaves is spun into cords for making hammocks, the trunk supplies sugar in abundance, and both the sap and the fruit are converted into beverages.



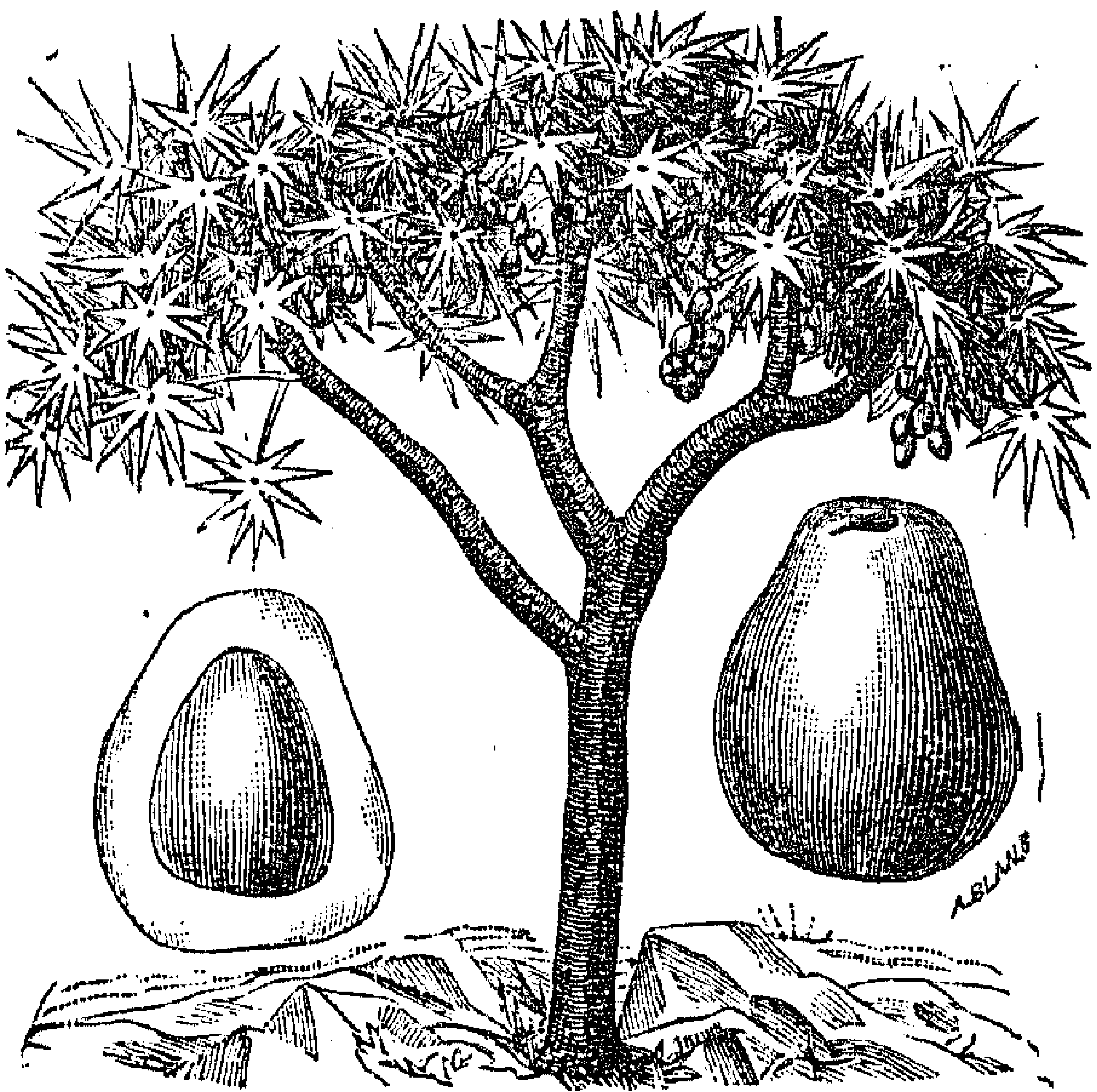
PALMYRA PALM.

Another family of the Palms is the Borassineæ, "The principal genus consists of only two species, one of which, *borossus flabelliformis,* is the magnificent Palmyra Palm, found throughout tropical Asia, and celebrated for the great number of its useful products. Its trunk, from sixty to eighty and even one hundred feet high, bears a magnificent crown of leaves of a circular fan shape, which, including the petiole, are ten feet long; these are used to thatch houses, to cover floors and ceilings, and to form a great number of useful articles, from bags and baskets to umbrellas and hats. They also serve as paper, which is written upon with a style. All the important books in Cingalese are written upon the laminæ of this Palm.

"The fruits, about the size of a child's head, are in bunches of fifteen to twenty, each containing three seeds of the size of a goose's egg, the albumen of these is eaten when young; the coating surrounding the seeds is a thick fibrous pulp, which is roasted and eaten.

"The most important products of this Palm are wine and sugar, (toddy), which are also yielded by many other species, and in other countries.

BORASSUS AETHIOPIUM, of the central part of tropical Africa, is the remaining species of this family of Palms, and furnishes similar products to the Asiatic species.



DOUM PALM.

Perhaps the most remarkable of Palms is the DOUM, of Egypt, which also grows in Arabia and Abyssinia, *Hyphœne Thebaica,* or *Crucifera,* its peculiarities consists in its having branches, with a trunk not exceeding thirty feet high. "It is simple when young, but in old trees is forked three or four times, each branch being terminated by a tuft of large fan-shaped leaves.

"The fruit is produced in large clusters of over one hundred, each the size of an orange, irregular in shape, with a highly polished yellowish-brown rind, enclosing a single horny seed. The rind, which is dry, fibrous and mealy, is said to taste exactly like gingerbread, and though unpalatable from its dryness, forms a common article of food among the Arabs."

There is a Palm growing on two of the Seychelles Islands, Praslin and Curieuse, north of Madagascar, which was named by La Billiardiere LODOICEA SCHELLARUM, with a curious history.

"The Double or Sea Cocoanut, COCO DE MER, was long a great puzzle to naturalists. Its large, deeply-lobed nuts, appearing like two Cocoanuts joined for about half their length, were occasionally picked up at sea, and their origin being unknown, they were in olden times invested with remarkable virtues. The albumen or meat of the nut was regarded as a preventive of various diseases, and the shell, used as a drinking cup, imparted similar power to the liquid it contained; enormous prices were paid for single specimens, and they were regarded as among the most costly of regal gifts. With the exploration of the Seychelles Islands, however, in 1743, the source of this wonderful miracle of nature, the most rare of marine productions, was ascertained."

The tree is dioecious, of slow growth, attaining ultimately the height of one hundred feet. The fruit is of immense size, weighing as much as forty pounds each, but the shell is the only part about it of value. The most delicate baskets and other fancy articles are made from the leaves. This tree might be grown by a corporation as a curiosity, but would hardly pay an individual, as the tree does not blossom until thirty years old, and requires ten years to mature its fruit. There seems to be serious apprehension of its becoming extinct by the wasteful felling of trees to obtain the nuts as well as the terminal buds or cabbages.

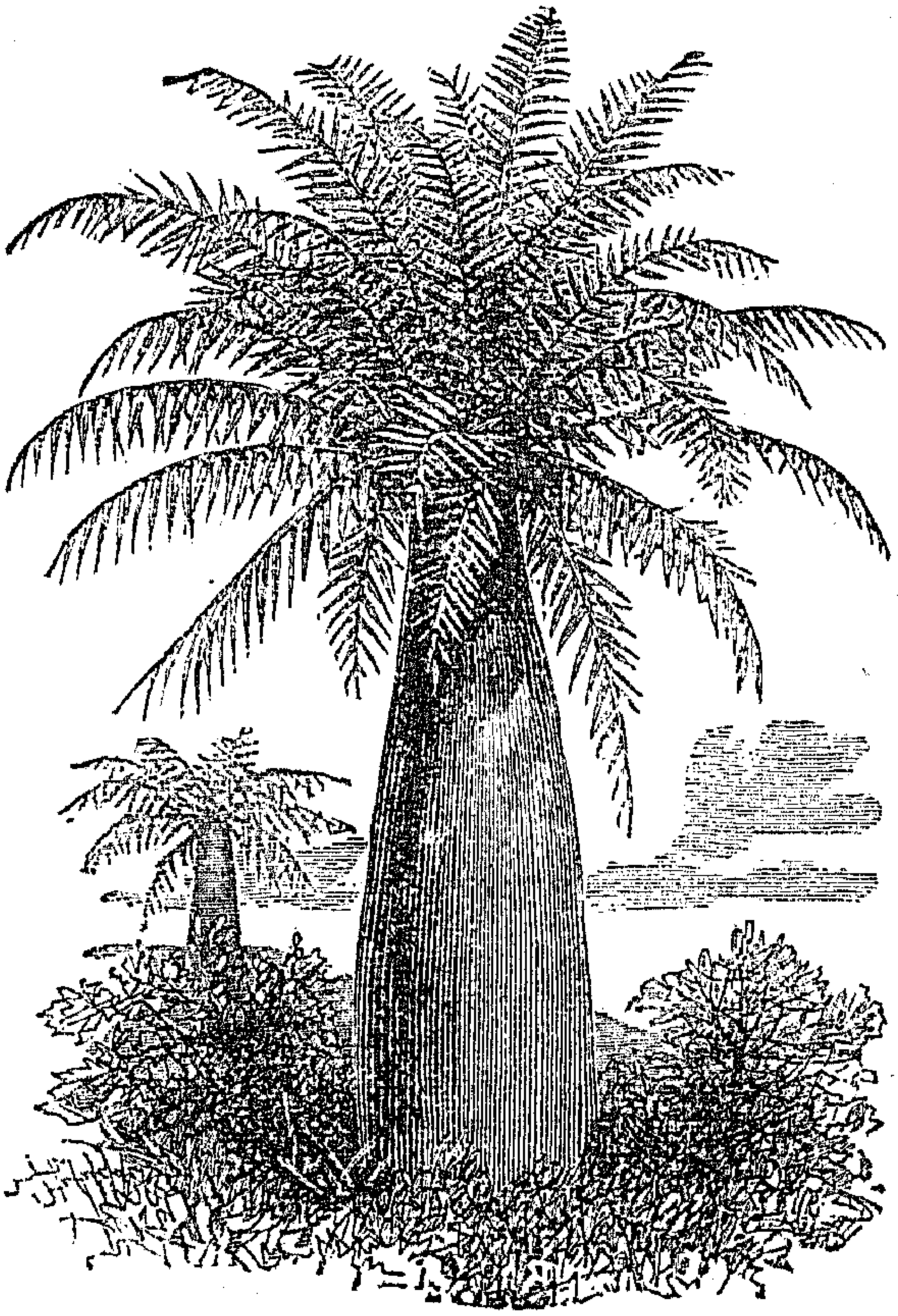
Similar to our Royal Palm is "the BOSSU of the natives of the Southern Amazon, which is *Manicaria Saccharifera*, the only species of the genus, and grows in the tidal swamps. This is distinguished from other palms by its entire leaves, only occasionally divided when old by splitting; they are frequently thirty feet long, four or five feet wide, and strongly furrowed from the midrib to the margin. The spathes of this Palm are fibrous, and when cut around at the base of the flower clusters, they may be pulled off entire. The spathe is dark brown, and its very strong fibres are so interwoven that it may be stretched to several times its proper diameter without tearing, and forms a very serviceable seamless bag, or if cut off it may be used as coarse cloth."

"The tribe CORYPHINEÆ, consists of trees or stemless plants, with fan-shaped, rarely pinnate leaves, the pinnules with erect margins. * * The genus *Corypha* includes several stately species, one of the best known being the TALIPOT PALM, *Corypha umbraculifera*, of Ceylon, and other parts of the East. Its magnificent leaves are remarkable for their regular plaiting, and form a fan, which is nearly a complete circle, four feet or more in diameter. The numerous segments are split and form a double fringe to the margin. These leaves require little preparation to make the fans used by the Cingalese, as emblems of rank. They are put to many other of the uses of Palm leaves, including the making of paper. The trunk also yields Sago.

"The TURA PALM, of Bengal, *C. taliera,* and the GEBANG PALM, of Java, *C. gebanga,* are both useful in various ways. The WAX PALM, *Copernicia cerifera,* of Brazil, bears upon its young leaves a coating of wax; this is collected by shaking the leaves, melted, and run into moulds. It is harder than beeswax; but no method of depriving it of its yellow color having been discovered, its use in candle-making is limited. A kind of cane was known in commerce as Penang lawyers, a long time before its origin was ascertained; it is now known to be the stem of a small Palm of this group, *licuala acutifida,* of the Island of Penang; the stem is seldom much more than five feet high, and has a diameter of an inch. The canes are prepared for walking sticks by scraping the surface and polishing. The genus *Chamærops* is noted as being the northernmost of the Palm family, one species, *C. humilis,* grows wild in Southern Europe as far as Nice; another, *C. excelsa,* is found in Asia as high as latitude 44° N. The most important of this tribe is the DATE PALM, *phœnix dactylifera.*

"The fifth tribe COCOINEÆ, includes both large and small trees. * * This tribe takes its name from its most important genus, *Cocos,* of which there are about a dozen species including *C. nucifera,* the COCOANUT PALM. The PEACH PALM, *Guilielma Speciosa,* a native of Venezuela, and cultivated in other parts of South America, is a lofty tree, and its stem is armed with small sharp spines. Its fruit, borne in large clusters, is about the size of an Apricot, pear-shaped, and scarlet and orange colored when ripe. The outer portion abounds in starchy matter and when roasted is said to taste much like the potato." It furnishes both food and drink to the natives, for an alcoholic beverage is made by fermenting the fruit steeped in water.

"The trees of the genus *Maximiliana* forms a striking feature in South American scenery. The INAJA PALM of the Amazon, *Maximiliana regia*, reaches over one hundred feet, and has a crown of immense leaves, which are thirty to fifty feet long. The spathes are five to six feet long, about two feet broad, and tapering at each end to a narrow point. They are used as packages in which to keep and transport flour, and will resist the action of heat sufficiently to serve as cooking utensils."

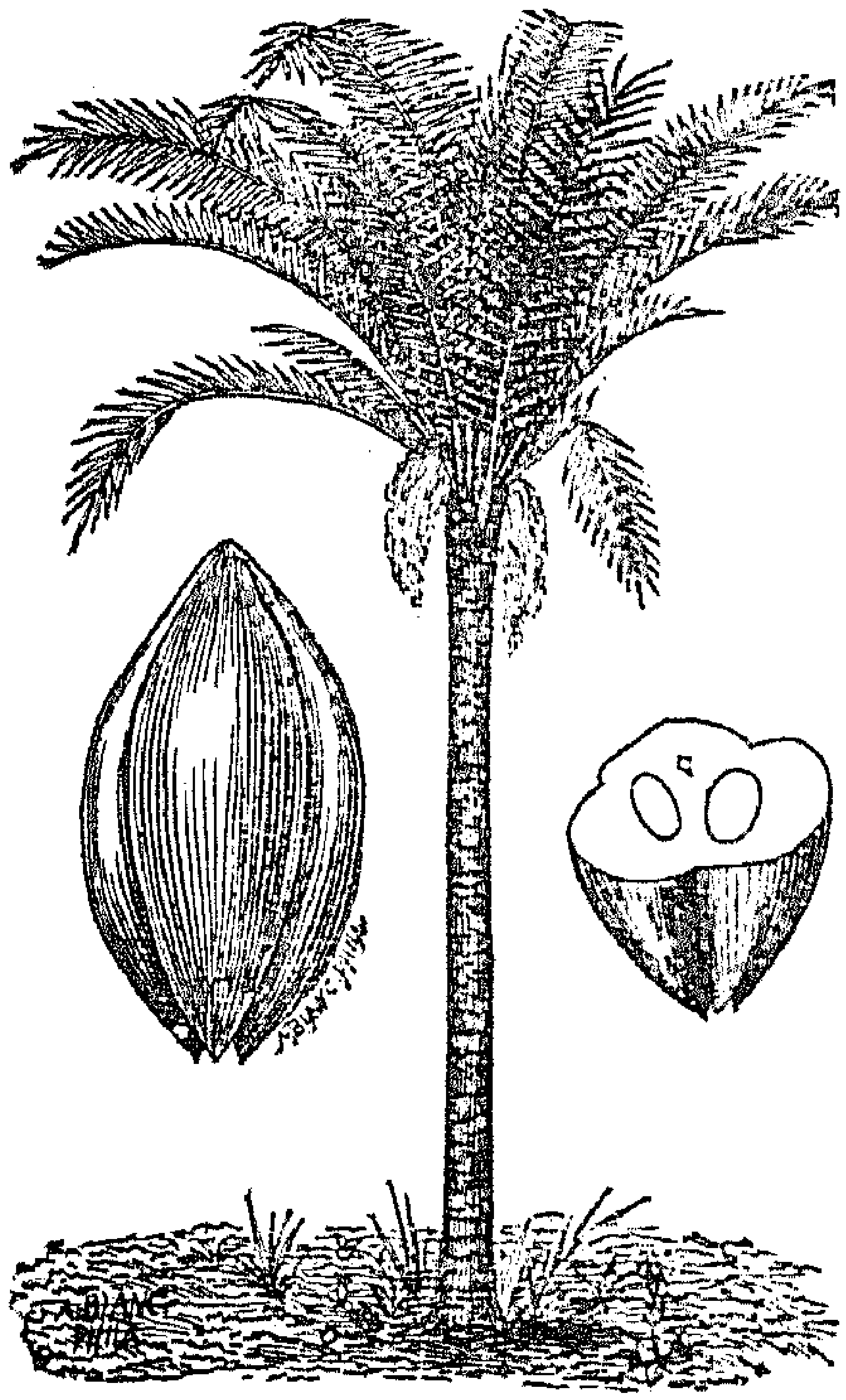


COQUITA PALM.

"The COQUITA PALM of Chili, *Jubæa spectabilis*, is one of the most southern species, and furnishes the Palm honey, so much used by Chilians. This is obtained by felling the tree, removing the crown, and catching the sap which runs from the wound. The flow is kept up by removing a thin slice of the end each day, and it continues for several months, each trunk yielding about ninety gallons.

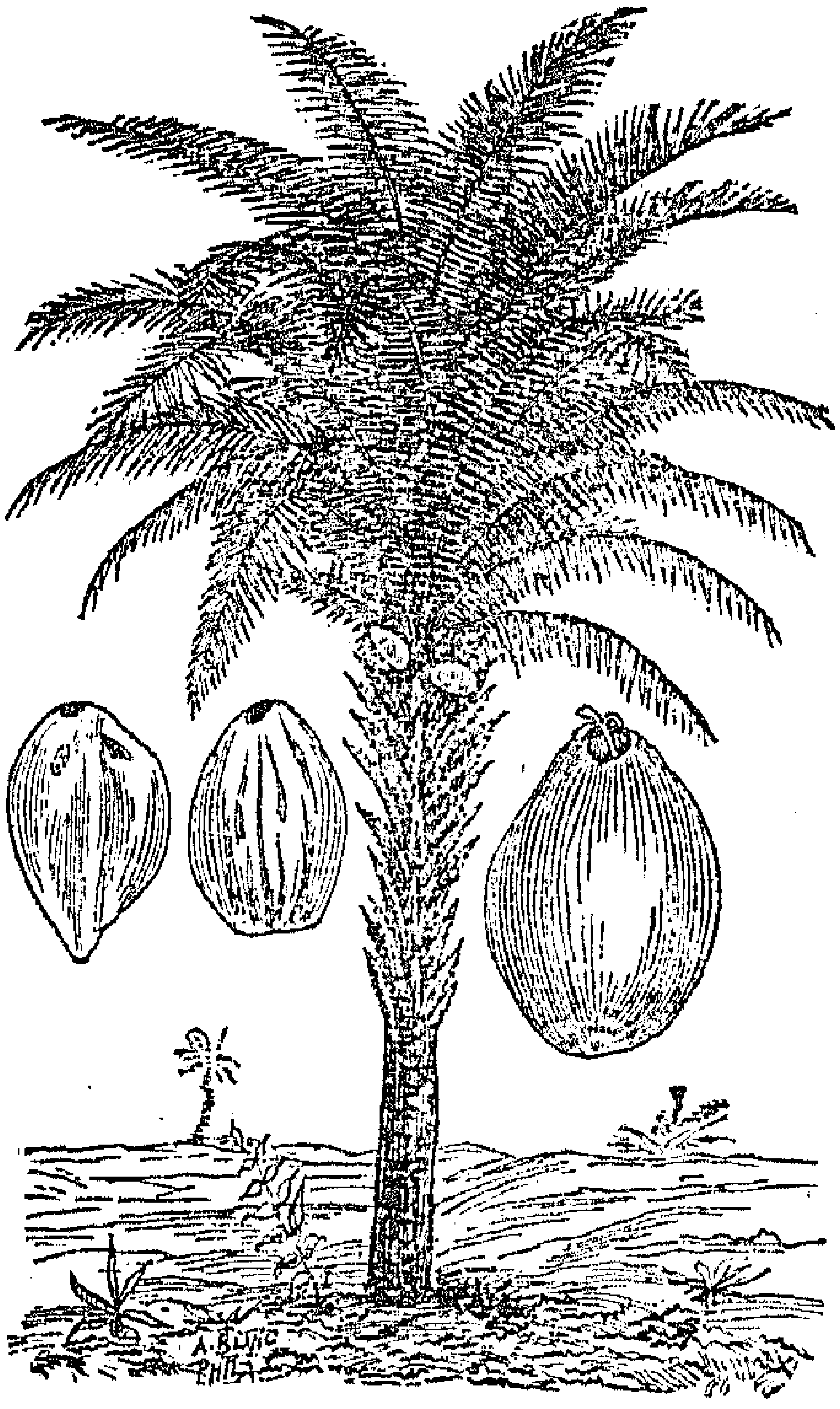
The sap is boiled down to the consistency of molasses, and used as a substitute for sugar.

"The small nuts of this tree are edible, and are a considerable article of export. They are deprived of their husks in a singular manner. Cows and oxen which are very fond of the green husks, are allowed to feed upon the nuts; they only masticate the husks and swallow the nuts whole, when afterwards they chew the cud, they reject the nuts, and when the animals have finished ruminating, these are found deposited in small heaps perfectly free from the husk."

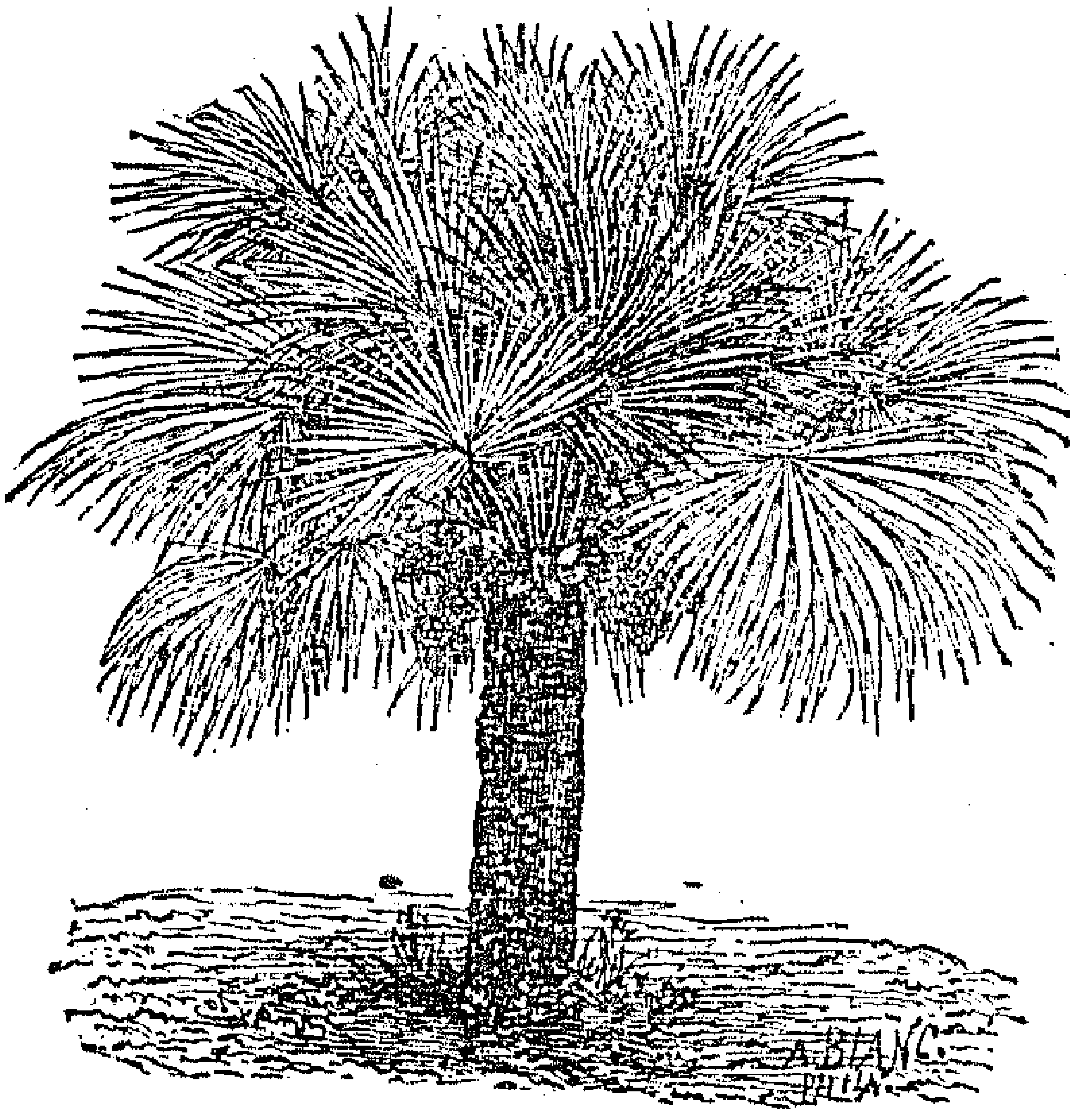

PIASSATA PALM.

"The Piassata, of Brazil, *Attalea funifera*, furnishes a strong and valuable fibre in the decayed bases of the leaf-stalks. It is also called Monkey Grass, and Para Grass, and is used for various purposes. Each fibre is the size of a small quill, smooth and stiff; considerable quantities are sent to England, where it is made into coarse brooms; the brushes of street cleaning machines are made of it. The fruit of this is different from that in any of the allied genera; it being three-celled and three-seeded. The nuts are an article of commerce and known as Coquilla nuts. They are about three inches long, of a rich brown color, and have an extremely hard and bony texture. They are used for knobs and other small wares similar to those made from Vegetable Ivory.

One of the most important products of this family is Palm Oil, which is obtained from the fruit of ELÆIS GUINEENSIS of Western Africa, where it grows in immense numbers.



OIL PALM (ELÆIS GUINEESIS).



HARDY PALM (CHAMAEROPS EXCELSA)

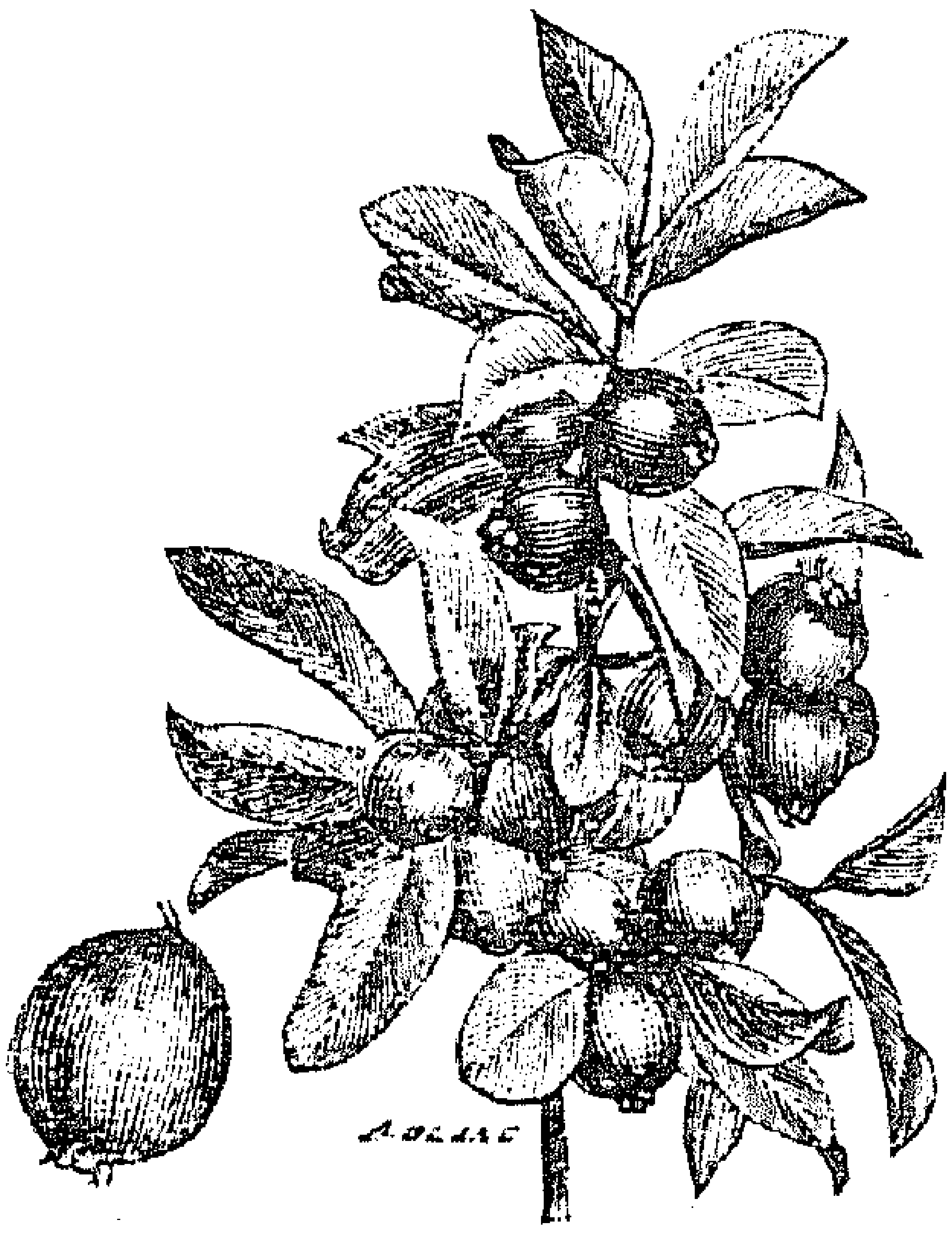
"Two species of *Chamaerops* are hardy in France and in portions of England. Those, *C. Excelsa,* from Nepaul, and *C. Fortunci* of North China, also called Chusan Palm, are of great value in sub-tropical gardening, as their large fan-shaped foliage is unlike that of any other plants. These withstand a cold considerably below 32° F., and would be quite hardy in Virginia and Southward." And in Florida, not only the last mentioned would find congenial homes, but very many, in fact all, with perhaps one or two exceptions, of those described in this article, might be successfully and profitably grown in our beautiful State. Let us begin at once to import the seeds.

So highly is this tree of magnificent foliage prized for decorating buildings and ornamenting pleasure grounds by those who can afford it, that immense sums of money have been expended for suitable places in which to grow it. There is a building at Kew, England, made of glass, for this purpose, which is three hundred and sixty-two feet long, one hundred wide, and about seventy feet high, surpassing, it is believed, any structure of the kind in the world.

The material for the foregoing article on Palms was obtained chiefly from that standard work, American Cyclopædia, the greater part of which is quoted directly, without any change or modification whatever. It will be found interesting to all, especially to those without ready access to the original.

GUAVA.

Psidium Guaiva.



This sub-tropical plant, a native of South America, is more or less cultivated in most of the Peninsula counties of Florida. In tropical countries, and even in the extreme southern counties, it is, or may be trained into a tree fifteen to twenty feet high, of exceeding beauty. Its dark shining foliage, pendulous branches, numerous white flowers, contrasted with the bright yellow of the fruit; together with the smooth, close bark of the trunk, like the Crape Myrtle. makes the GUAVA an attractive ornament to any grounds. Where liable to injury from frosts, the GUAVA is cultivated in bush form ; numerous stems spring up from the same root.

The flowers are solitary, or three together in the axils of the upper leaves; white, and quite fragrant.

The fruit, of various shapes and sizes, begins to mature in warm latitudes early in June, and the flowering, fruiting and maturing continue without interruption until December. Where frosts sometimes kill down the bushes, the bearing time is delayed to July, and even August.

Fruit has been gathered the last of August, by the Author, from the new growth of a root, whose stems had been killed down to the ground by the cold of the previous winter, whence it is inferred, that under proper treatment a small crop may be obtained, though the bush is killed every year, or every two or three years. Such a result has been secured in southern Texas. Complete protection must be afforded for several years, in places where the plant is liable to be killed, until the roots have thoroughly established themselves. The soil, if practicable, should be alluvial, oily, and moist from fertility, and the plants copiously watered in dry weather.

The Guava is usually propagated from seeds, which is readily done, and the plant will bear fruit in two years. It is safer, however, to propagate by cuttings, or better still, by layers where it can be done conveniently.

Strangers to this fruit turn away from it in disgust at first, but it is surprising how *kindly* and *voraciously* even they take to it after a little perseverence, especially when reduced to the extremity of Guava or *no fruit.* A relish for it is thus formed, which is exceeded by that for no other fruit. Even those accustomed to the most luscious peaches, have, after acquiring a taste for Guavas, unhesitatingly given the preference to Guavas and milk, over that rarely equalled dish, "fresh milk and peaches." And since peaches do not succeed well south of about 29° 30′, this popular substitute should receive the consideration it so deservedly merits.

The seeds are hard, small, angular, very abundant and distributed all through the pulp, after the manner of figs. They seem to be greatly in the way in the first efforts of Guava eating, but the annoyance as such, soon ceases.

The principal cultivated varieties are called *maliforme*, apple-shaped, and *pyriforme*, pear-shaped, from the form of the fruit.

CATTLEY'S, *Psidum Cattleyanum*, though imported from China, was doubtless carried there from South America. This is a purple or claret colored Guava, and appears to be more highly esteemed in India than any other. It is claimed to be much more hardy than any other, which should strongly commend it to growers in the northern districts of our State. This kind, although smaller than the common Guava, is remarkably fruitful. It also contains more acid, and on that account would probably be better adapted for making jelly. Says an Eastern cultivator, "It is perhaps the most perfect and graceful evergreen that an amateur of plants ought to desire, or even can possess."

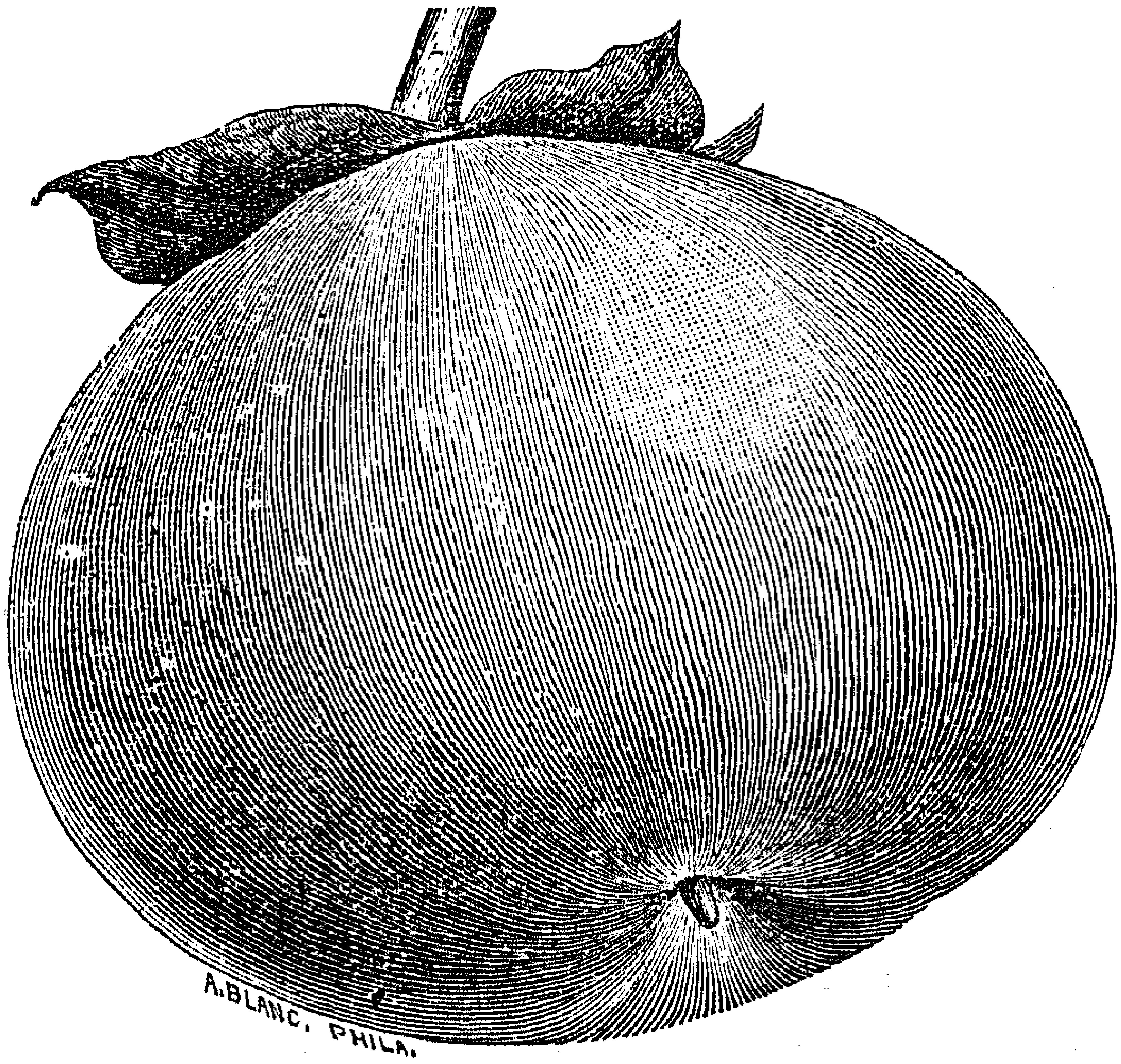
STRAWBERRY: About as large as a medium sized peach, of pale yellow color, whose soft pulp possesses the delicious fragrance and flavor of the Strawberry. A very choice kind.

GUINEA GUAVA: P. *Guinense*: Represented to be of about the size of the preceding, and "of exquisite taste."

Besides the jelly made from the Guava, a popular sweetmeat wherever known, is Guava marmalade, of which most every one is fond. For fruit rolls, or old-fashioned dumplings, it is not excelled by any other fruit.

JAPAN PERSIMMON, or DATE PLUM.

Diospyros kaki.


A. BLANC, PHILA.

The opinion entertained by some persons that this is a tropical plant is entirely unfounded, since its successful culture in the "cotton growing belt of the Southern States," is claimed to have been abundantly tested, and well established.

It is said to have been carried from Japan to California by a United State naval officer, some ten or fifteen years ago, but its introduction to the fruit growers and nurserymen of this State is of a much more recent date.

Firminger, under the name Date Plum, speaks of it as a native of China, where the tree, of large proportions, bears abundant crops "in the neighborhood of Calcutta." He describes the fruit, which ripens during the month of August, as "about the size of a large Apple, with twin almond-like stones in the center."

The genus to which this species of hardwood belongs, includes also the East Indian ebony, *D. ebenaster*; Ceylon ebony, *D. ebenum*; and a beautiful cabinet wood of Ceylon, *D. quæsita.*

There is no question of the rapidly increasing popularity of the Japan Persimmon, as its many good qualities become better known. In Japan, where it is held in high esteem, both dried and fresh, there are said to be as many varieties as of the Apple in this country, and quite as susceptible of improvement by intelligent cultivation.

The dried fruit, put up after the manner of the Smyrna Fig, is pronounced far superior in flavor, and it is not improbable that, prepared in this way, it will become an important export from Florida.

The general appearance of the fruit is similar to that of a large smooth Tomato. In color it is a bright red, or delicate crimson, and of various sizes and shapes. Like its American kinsman, it is quite astringent in its premature state, and its flavor is also said to be improved by exposure to a light frost. This however cannot be permitted when it is designed to keep them fresh for any length of time, since the frost will induce early decay.

The productiveness of this fruit tree is no less remarkable than the early age at which it begins to bear. The statement of its not being uncommon "to see a one year old tree planted in the spring, producing a crop of from twenty to fifty Persimmons the following year," would scarcely be credited if made by a less careful cultivator than P. J. Berckmans, of Augusta, Ga., to whom Florida is much indebted for fruit favors.

The only reliable method of propagation is by grafting and budding on to the native Persimmon, which are grown in nurseries from the seed for the purpose. The efforts of those who have attempted to propagate from seed have generally resulted in vexation and disappointment. In the first place, it is difficult to procure seed of the better varieties, because they are mostly seedless, and where that objection has been overcome, the flowers in most instances were sterile. So that grafting or budding will be found more economical, and much more satisfactory.

Mr. Berckmans recommends, and describes the following varieties as probably the best, two of which are known by several names.

AMONG: round, nearly globular, orange red, two and a half inches in diameter, exceedingly prolific. keeps late.

HACKEYA; also called Tomato, Imperial, etc., usually oblong, though globular specimens are quite numerous; two and a half to three and a half inches in diameter; orange red, good quality and keeps late.

HYAHUME, called also Pound, Seedless, Tanenashi, Mimokaki, etc., very large, nearly globular, deep orange red, three inches in diameter, and nearly always seedless; keeps late.

KUROKUMO; round, somewhat flattened and ribbed, of a bright vermillion color and averages three inches in diameter.

ZINGI: the smallest of the list, nearly globular, averages two inches; pulp quite dark, very sweet and rich, best quality; very productive and matures during October.

KUMQUAT---OTAHEITE ORANGE.

Citrus Japonica.

This popular little tree, bearing miniature Oranges is a native of China, but has been successfully grown in this State as a garden ornament.

It is a profuse bearer, and its fruit, though not larger than a Damson Plum, is used by some persons for making preserves. It can be propagated by budding, grafting, layering, or by seeds. Mr. Fortune remarks, "in order to succeed with it as well as the Chinese do, one little fact should be kept in view, viz: that all the plants of the Orange tribe which bear fruit in a small state, are grafted." Which fact may be turned to good account in orchard cultivation, where trees are much more plentiful than suitable spots of land to grow them upon. Quicker moneyed returns may also be obtained by acting upon the above suggestion.

LOQUAT.

Eriobotrya Japonica.

This tree, native of the far east, was some years ago introduced into Leon county, of this State, from New Orleans, under the name "Japan Plum."

It has been tried in many parts of the State with fair success. A small but very handsome tree having thick leathery lanceolate leaves, whose upper surface is finely polished, and the lower with a brownish down. As an ornament alone to the garden or yard it is much prized.

The flowers appear in upright bunches, of a creamy white color, and a most delightful fragrance.

The fruit is in clusters almost as close as grapes, about as large as a good sized plum, with a thick skin of a dull roseate or pinkish color. The pulp is fleshy like the Plum, in the center of which is the stone or seed of varying size.

There are no distinct varieties given, yet there is very manifest difference in the flavor as well as the size of the fruit as grown in this State, and also in its native land. Some trees producing sweet agreeable fruit, while that from others is entirely too acid to be palatable.

It is believed that the flavor can be greatly modified by cultivation, especially by a copious supply of water, if the weather be dry, between the flowering and maturing periods, with an occasional application to the roots of good liquid manure.

The LOQUAT comes readily from the seed, which should be planted very soon after they are taken from the fruit. It would be better to rely upon budding or grafting from known choice kinds.

THE ORANGE.

Citrus Aurantium.

This is undoubtedly the great staple fruit of Florida. A native of Asia, it was introduced into Europe by the Portuguese in the fourteenth century. By some, the word "Citrus" is supposed to have been derived from "Citron," the name of a little town in Judea. Except in orangeries and conservatories, Orange culture in Europe has from climatic requirements been chiefly confined to the Latin races, and by them extended into all parts of the world favorable to its growth and development. The bitter and sour Orange trees growing wild in the rich hammock and bottom lands of east and south Florida, are known as the SEVILLE ORANGE, the seeds of which were doubtless brought over by the early Spanish navigators. All the sweet varieties are believed to have sprung from this wild race, transformed by the wonderful effects of cultivation. In Italy, under the name "CEDRANGULO," it is highly esteemed for grafting or budding the sweet varieties upon; preferred on account of its superior hardness.

VARIETIES.

The varieties of the sweet Orange are quite numerous; among which may be named SILVER, EGG, WHITE, NAVEL, MALTESE, MANDARIN, NONPAREIL, ST. MICHAEL'S, etc., of foreign importation, and the unsurpassed SOUTH FLORIDA, or INDIAN RIVER ORANGE, the seeds of which most likely came from Cuba.

SOIL, SITUATION, ETC.

The best soil is a deep, rich loam, sufficiently loose or porous to admit air as well as water to the roots, and the situation elevated enough to keep the roots out of stagnant water. Many erroneously conclude, because the wild Orange sometimes inhabits wet places, that low situations are best adapted to it. In such localities, however, it rarely attains to the dignity of a tree, no matter how old, even when not liable to the objection of being over-crowded. The most thrifty wild groves are found in high hammocks and the more elevated bluffs of lakes and water-courses, where the soil abounds in vegetable matter, often intermixed with decomposing shells, or other forms of lime.

PROPAGATION.

This is effected by budding, and from seeds. Grafting is seldom practiced, as budding is simpler and generally successful. There is a sort of compound of the two, called "side-grafting," or "bud-grafting," much in use. It consists in making a diagonal incision across the stock or trunk—inserting an end of the scion, previously sharpened like a wedge, between the bark and the wood, and binding as in ordinary budding.

The best time for budding is as early in Spring as practicable, while the sap is freely circulating and the tree in a thriving condition. This gives a long growing season to the new bud, and enables it to withstand the cold of the succeeding winter better than the tender, succulent shoots of midsummer or autumn.

It requires seven to eight years after the seed is deposited in the ground before the appearance of fruit. This for the general rule; of course there are exceptions. The soil for a seed bed should be very rich, and the seeds sown in drills eighteen inches apart as thick as English Peas. A brush arbor to protect the young plants from the noonday sun, after warm weather sets in, will be of advantage. When one year old, transplant into the nursery in rows three to four by two to two and a half feet, respectively.

Sweet seedling stocks have been more extensively used of late years for budding upon than sour; and the superior hardness claimed for the latter is stoutly denied by orange growers of long experience and intelligence.

A four or five year old stock may be made to bear in two years by using buds from a healthy, full bearing tree. This has the effect of dwarfing the trees, and consequently they may be placed much nearer together in the grove. Some have adopted this plan for getting early returns—planting over one hundred trees to the acre.

ANALYSIS OF THE ORANGE.

	Root.	*Stem.*	*Leaves.*	*Fruit.*	*Seed.*
Potassa	15 43	11.69	16.51	36.42	40.28
Soda	4.52	3.07	1.68	11.42	0.92
Lime	49.89	55.13	56.38	24.52	18.97
Magnesia	6.91	6.34	5.72	8.06	8.74
Sesquioxide of Iron	1.02	0.57	0.52	0.46	0.80
Sulphuric Acid	5.78	4 04	4.43	3.74	5.10
Silicic Acid	1.75	1.22	4.83	0.44	1.13
Phosphoric Acid	13.47	17.09	3.27	11 07	23.24
Chloride of Sodium	1.18	0.25	6 66	3.87	0 82

From which it appears that ground bones—to furnish phosphoric acid and lime, and wood ashes the potassa—are the principal mineral constituents required by the Orange. Excellent results are obtained from the droppings of cattle, or *cow-penning*, as better known in the stock districts. Muck, composted with stable manure, cotton seed and gypsum, makes a valuable fertilizer. There are also special manures manufactured by dealers, which answer a good purpose. Almost every one has a favorite fertilizer. Ours, for this and fruit trees generally, is ground bones liberally broadcast and plowed in the beginning of spring, with at least one good crop of pea vines turned under the latter part of summer.

SETTING OUT.

After a thorough preparation of the soil by grubbing, plowing, manuring, etc., the ground is staked off in rectangular or diagonal rows thirty feet each way. The dimensions of the holes should be regulated by the size of the trees to be planted, care being taken to provide ample room for the roots, and not to set the tree deeper in the ground than it originally stood.

Formerly the "rainy season" was considered the only time for transplanting Orange trees with safety, but intelligent observation, supported by numerous successful experiments, has upset this theory. The Orange tree possesses so much vitality that it may be removed short distances, with judicious management, at any time. But the winter season, after the descent of the sap, is the most propitious, especially when large trees are to be handled, and the transportation considerable. Copious watering, during the process, and heavy mulching afterward, should not be neglected, more particularly if the warm season is selected for the operation.

CULTURE.

Much diversity of opinion prevails as to the best manner of cultivating a grove, both before and after it comes into bearing. The main object is, or should be, to keep the ground mellow and open, not only to supply the roots with air and moisture, but to encourage them in roaming about in quest of food. It is bad policy to expose the naked ground to the scorching rays of the sun during the long hot summer. It should be shaded by some covering. Field peas are admirable for the purpose; but even grass and weeds, except immediately around the trees, would prove far less detrimental than the burning effects of the sun on the denuded surface.

One or two plowings in the spring when fertilizers are applied, and again in the fall, to turn under the green crop of pea vines or grass, will, with the use of the hoe to clean immediately around the trees, give abundant cultivation.

TIME OF BEARING, ETC.

In a budded grove, where the buds are taken from bearing trees, and the stocks four to five years old, fruit may be expected in two years. A grove of seedlings, the trees of which were four years old when transplanted, will begin to bear in about four years thereafter. The first crop ranges from a single Orange to thirty or forty per tree, increasing with more or less rapidity each succeeding year.

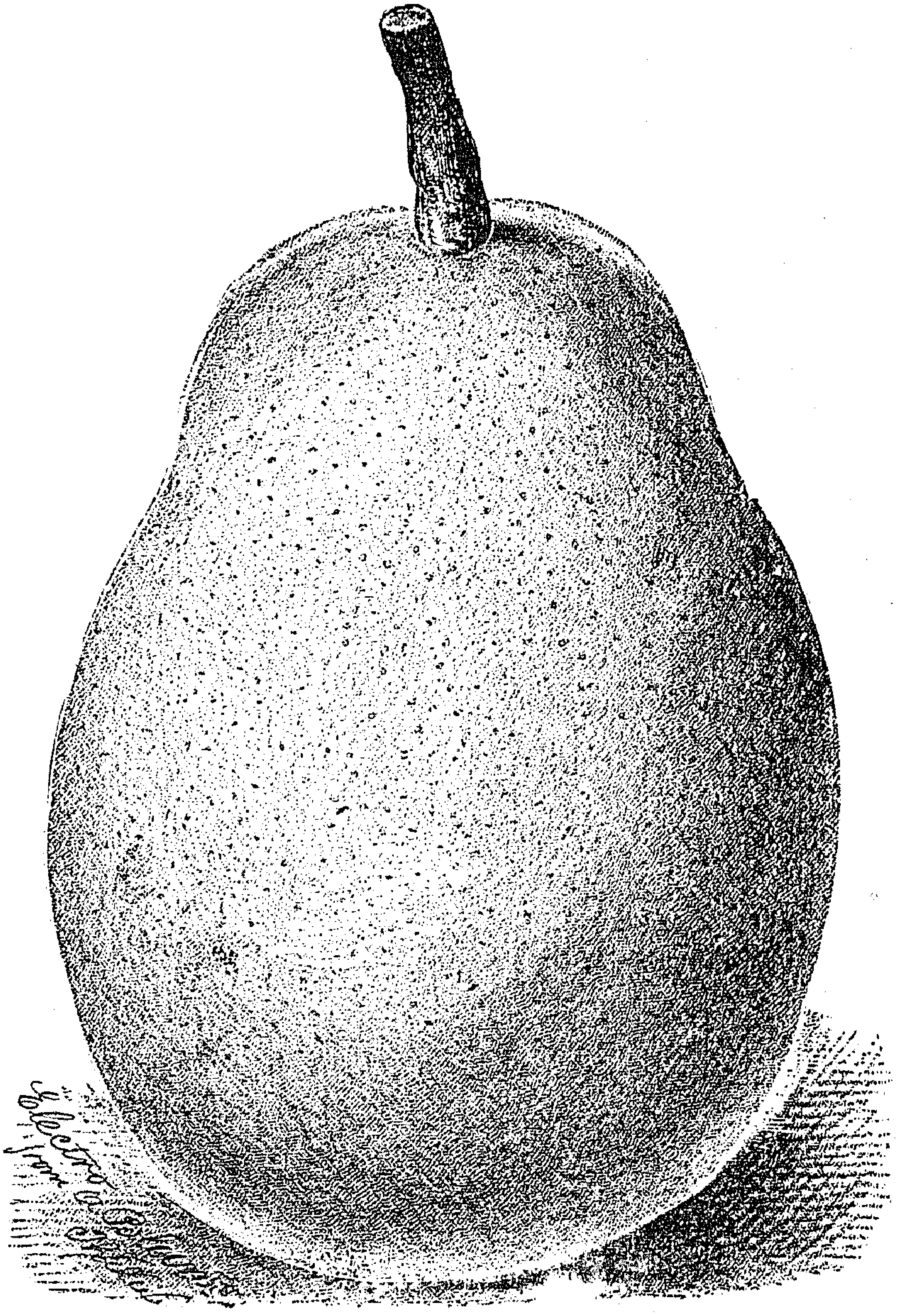
Trees do not yield much revenue until ten or twelve years old, nor reach their maximum of production under thirty years from the seed. In groves numbering from 500 to 1,000 trees, 1,000 oranges per tree at fifteen years old would be an excellent average.

LeCONTE PEAR.

There is no fruit in Florida, the Orange alone excepted, that excites more interest at present than the LECONTE PEAR. And therefore, as one of the very valuable market products of this State, especially to the Northern, and elsewhere clay sub-soil districts, I deem it but just to devote a few words to its history and treatment.

It was introduced into Liberty county, Georgia, in 1856, by

Major John LeConte, who bought it of some Northern nurseryman for a seedling of the Chinese Sand Pear, which it was labeled, and from which circumstance it is to this day incorrectly called the "LeConte, or Sand Pear," in many places, whereas



LE CONTE PEAR.

it is totally distinct and different from the "Sand Pear," which is of little or no value as a fruit.

For a long time the good qualities of this Pear were overlooked, from the fact of its coming into bearing about the breaking out of the late civil war. The country is largely indebted to Captain Varnadoe, of Thomasville, Ga., for the development of the LeConte Pear; and its history as a market product of great value is such as as to commend it to every one living within the favored region of its successful growth.

It is a hybrid, and must, therefore, be propagated by cuttings or slips, by budding or grafting. The cuttings should be about one foot in length, and placed so deep in the soil as to leave out but two buds. The rows may be twelve to eighteen inches apart and the cuttings three or four inches in the row. When one year old, they are transferred to the nursery and planted about three by three feet, and left to grow another year before final removal to the orchard; or they may, if preferred, be removed directly from the cutting bed to the orchard. In either case, the long switch stem should be cut off two to three feet from the ground, divided into twelve-inch slips, and planted out in the cutting bed.

The trees begin to bear in four or five years from the rooting of the cuttings, but do not become remunerative until seven or eight years old. At ten years, it is said they attain a height of twenty-five feet, and a width of top of as many feet, and bear ten to fifteen bushels. It is further stated that, at fifteen years old, the width of top reaches thirty-five feet, so that it would be manifestly unwise to plant the trees in the orchard nearer together than forty feet each way.

As to the fruit itself, it is very palatable, and has steadily advanced in price in market from $2.25 to upwards of $5.00 per bushel crate. From the fact of its having a tough skin, it bears shipping admirably.

While it is claimed that the LECONTE PEAR will flourish in sand as well as clay soils, there is little doubt that a subsoil of clay is to be preferred.

The natural inclination of this tree is to grow too much like the Lombardy Poplar, hence the pruning must be to induce as much horizontal growth as possible.

As a guide for fertilizing, the following analysis of the common Pear is given:

ANALYSIS.

	Sap-wood.	*Heart-wood.*	*Bark of Trunk.*
Potash	22.25	26.94	6.20
Soda	1.84	....	....
Chlorine	0.31	0.21	1.70
Sulphuric Acid	0.50	0.45	1.80
Phosphate of Lime	27.22	20.40	6.50
Phosphate Peroxide Iron	0.31	0.80	....
Carbonic Acid	27.69	25.48	37.29
Lime	12.64	13.14	30.36
Magnesia	3.00	2.93	9.40
Silex	0.30	0.30	0.40
Coal	0.17	12.00	0.65
Organic Matter	4.02	5.00	4.20

From which it appears that wood ashes, ground bones and vegetable matter should be freely used as fertilizers.

Very satisfactory experiments have been made in grafting the Bartlett and other varieties of Pear upon the LeConte stock. Its habits of rapid, vigorous growth, render it peculiarly fitted for this purpose.

Should it turn out that the successful cultivation of the LECONTE PEAR is to be restricted to the older sections of the State, thereby offsetting the more tender products of the Southern portion, it will be only another instance cf the equal and impartial distribution of her priceless gifts, by that friend of mankind—Dame Nature.

Whether as a desert fruit, a sweetmeat, or evaporated for culinary purposes, this pear must rank high among the remunerative crops of Florida, and continue to advance in popular favor, until some formidable enemy springs up to remind us that neither Pear, nor Orange is exempt from the universal curse of Eden.

STRAWBERRY.

Fragaria.

The universal popularity of this delicious berry is calling forth great effort in all places favorable to its production; and the prominent place it already occupies among the profitable market garden products of Florida, will justify the insertion of a few hints respecting its culture in this treatise.

Twenty-five years years ago, Charles A. Peabody, a noted horticulturist of Columbus, Ga., was regarded as the prince of STRAWBERRY growers in the South, and his truly wonderful success well entitled him to that distinction. Many new theories of culture have doubtless been put in practice since that period. If, however, the yield per acre, earliness, and length of the bearing season may be taken as the proper criteria by which to judge the value of a system of cultivation, there is none now in operation superior to that Mr. Peabody pursued. It was briefly this:

Select a rich sandy loam—new land, and bordering on a stream of water if practicable. Break up the ground thoroughly with a plow, and lay off the rows two feet apart. Set out the plants two feet distant in the row, in the proportion of seven rows of pistillate to one of hermaphrodite. Suffer the runners to grow the first season, but never afterwards, except where new plants are desired. Go through the bed in the fall with the hoe thinning out the plants to eight or ten inches apart, at which distance they must be kept ever afterward. Leave the cut-up vines to decay on the ground. After this operation of thinning, cover the bed with partially decayed leaves from the forest, or seaweed, or cut-up straw. The winter rains will beat down this covering, and the fruit germ make its way through on the approach of the first mild weather of early spring. When the blossoms begin to appear, wood ashes may be used to great advantage. Should the weather be dry at this time, apply water, not to benefit the vine, as the ground may indicate sufficient moisture, but to fix the fruit—to prevent the pollen from escaping without performing its functions of impregnation.

Mr. Peabody ascribed his success in producing early and abundant crops, and in prolonging the bearing season to six, and even ten months, to a judicious use of water in dry weather. The water should be applied through the nose of a watering pot, or syringe—in the form of rain and never by flowing.

Never use animal, or any heating manure such as cotton seed, without facilities for watering freely and continuously. Vegetable matter, as leaf mold, or virgin soil, will be found far better. Mr. Peabody stated that his STRAWBERRY beds, by his treatment, lasted twelve years.

E. P. Roe, of New York, mentions that his "oldest beds of the SHARPLESS did the best;" and that a bed of the CHARLES DOWNING, if given good care, will last five years.

More than ten years before Peabody's day, the STRAWBERRY was grown in Middle Florida, upon very much the same principles, and with similar results.

It should be borne in mind, that after the field or plat is once set with vines the distance they are to permanently grow, a ceaseless war should be waged against all runners, or else the supply of fruit will be much diminished. For propagation, remember that runners produce precisely like kinds, including sex, while seed do not.

The sexual character of the STRAWBERRY should be well understood. There are three kinds, the staminate, or perfect male, the pistillate or perfect female, and the hermaphrodite, possessing both stamens and pistils. The hermaphrodite is generally employed as an impregnator for the pistillate or female, from the fact that while it answers the purpose as well as the staminate, it also bears fruit. The staminate bears little or no fruit. It makes quite a display of flowers, however, and they are larger than the other kinds. The pistillate is the most productive when placed sufficiently near either of the other kinds. Some cultivators use only the hermaphrodite.

It is important that transplanting, or setting out, should be done as early in autumn as the weather will admit. Cool days and plenty of moisture are required. In this climate transplanting may be continued all through the winter months.

VARIETIES.

Without experimental acquaintance with varieties of very recent date, I can only repeat what others say of them. Several are claimed to possess great excellence as to size, flavor, productiveness and shipping qualities.

The BIDWELL is represented to be be one of the very best in every respect.

HERVEY DAVIS. Another new and much praised variety. Of the standard varieties with which the general class of cultivators are more familiar, may be mentioned WILSON'S ALBANY, SHARPLESS, JUCUNDA, HOVEY'S SEEDLING, ETC.

PROPAGATION

BY

Budding, Grafting, Layering, Inarching, Etc.

There is no State in the Union, and probably no country in the world where the various methods of propagating plants and trees other than by seeds are more in request than they are in Florida.

This is due to several reasons. One is the large variety of valuable fruit and ornamental trees. Another is the necessity laid upon almost every fruit grower to become his own operator. And another may be found in the high order of intelligence which characterizes our fruit-growing population as a class. A large proportion of them having acquired the means of indulging those horticultural proclivities which as a rule possess the hearts of men, usually in the *lengthening shadow period* of life. They come among us ready to learn, and eager to *apply* upon their own grounds whatever will contribute to the useful, the novel, and the beautiful; and at the same time furnish them with active, out-door employment, both profitable and in every respect congenial.

In the following descriptions of the different modes of propagation, I have followed the accounts given by C. W. Johnson, Gouverneur Emerson, D'Albret, Loudon, Lindley, Firminger, American Cyclopædia and others—frequently using their language literally.

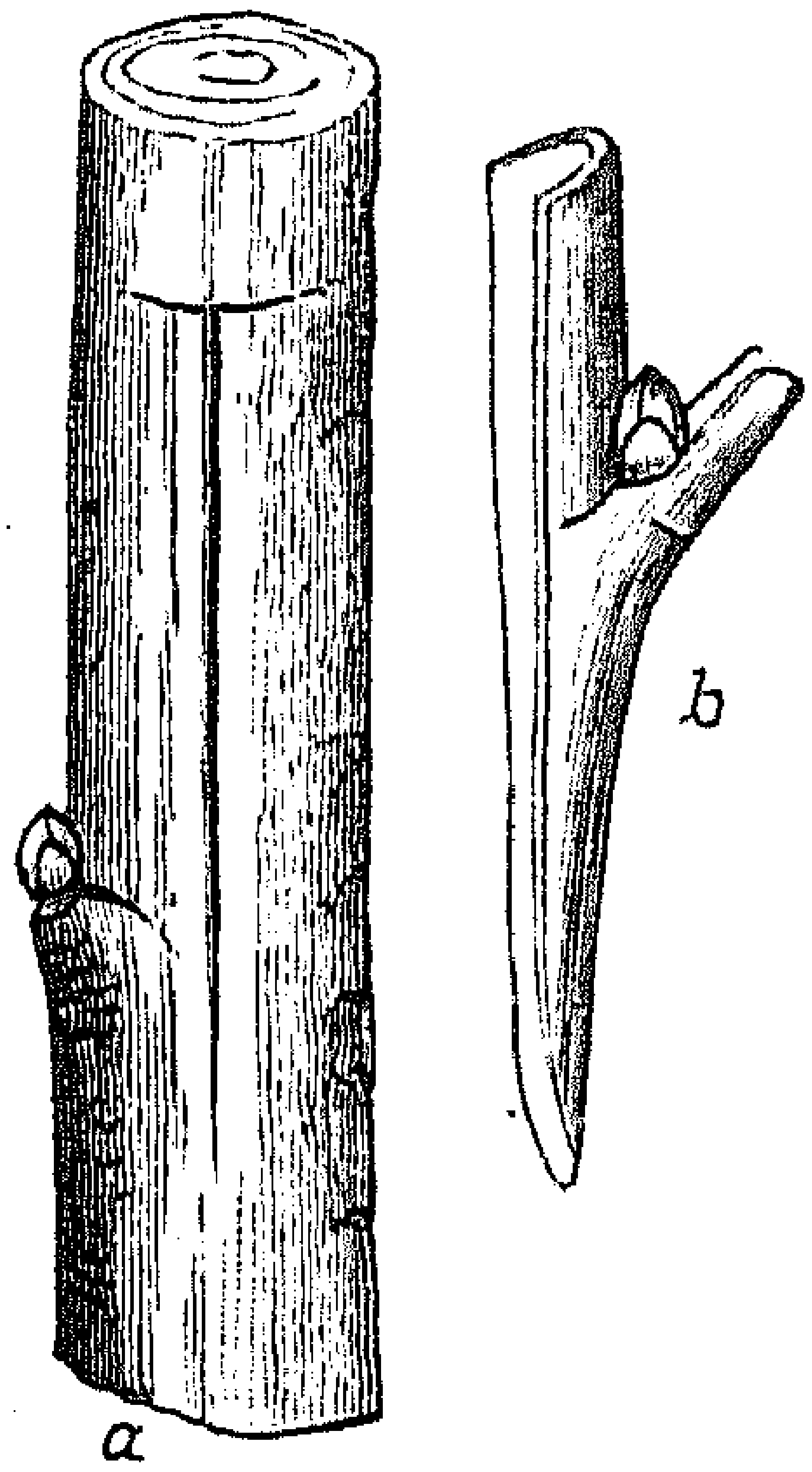
BUDDING.

While the same object is attained in budding as in grafting, the former is generally preferred in most cases, for the following reasons: It is more expeditious. Stocks may be budded at an earlier age than they could be grafted; several trials may be made the same season, thereby multiplying the chances of success, and there is less injury inflicted by abortive efforts. Half grown children soon learn to bud with skill and success.

That budding and grafting "can only be performed within certain physiological limits," is a well established fact; but *precisely* what these limits are is not positively and definitely determined. "In general all the species of one genus may be grafted on another reciprocally, but this is not universally the case, for the Apple cannot be grafted on the Pear, at least not for any useful purpose." The graft soon perishes.

Again, while it may be assumed that "all the species of a natural order, or at least of a tribe, may be grafted on one another, even this does not hold good universally. The reverse, however, of this doctrine viz: that the species belonging to different natural orders cannot be grafted one on another, holds almost universally true; and therefore a safe practical conclusion is that in choosing a stock, the nearer in affinity the species to which that stock belongs is to the scion (or bud), the more certain will be the success."

"Budding consists in introducing the bud or eye of one plant with a portion of bark and wood adhering to it, beneath the bark of another plant botanically related. In order to effect this, a longitudinal incision is made through the bark of the stock down to the wood, and is then crossed at the upper end by a similar cut, so that the whole would resemble the letter T; the bark is raised on each side of the cut, by the ivory blade of the budding knife, or a substitute made out of bone or ivory, and the stock is ready. Taking the stick of buds in his left hand, the operator inserts his knife above the bud, bringing it out below, so as to cut away the bud, a portion of the bark, and a part of the wood." More particularly: Holding the cutting or scion in one hand, the thickest end outward, and with the knife in the other hand, enter it about half an inch or more below a bud, cutting nearly half-way into the wood of the shoot, continuing it with one clear slanting cut about half an inch or more above the bud, so deep as to take a part of the wood along with it; the whole being an inch and a half long—then placing the bud thus prepared between your lips to keep moist, use the ivory haft to raise the lips of the upper part of the slit, insert the



lower end of the bud and push gently down, being careful to see that the bud lies flat against the naked wood. The next operation is to cut of the top part off the shield (*Fig b*) even with the horizontal cut, in order to let it completely into its place, and to join exactly the upper edge of the shield with the transverse cut, that the descending sap may immediately enter the back of the shield, and protrude granulated matter between it and the wood, so as to effect a living union.

The parts are now to be immediately bound round with a ligament of bass or other suitable material, previously soaked in water, to render pliable and tough, beginning a little below the bottom of the perpendicular slit, proceeding upward closely around every part except the eye of the bud, and continue it a little above the horizontal cut, not too tight, but just sufficient to keep the whole close, and exclude the sun, air and wet."

"In a fortnight at farthest, after budding, such as have adhered may be known by their fresh appearance at the eye; and in three weeks all those which have succeeded well, will be firmly united with the stocks, and the parts being somewhat swelled in some species, the bandage must be loosened, and a week or two afterward finally removed."

A bud is an organized plant in embryo, with roots, branches, and foliage, and, like a seed, possesses individual vitality, capable of development and the re-production of its species. The process of budding is the transferring this embryo plant from its parent tree to another tree which must at least be of the same genus if not of the same species.

The Apricot and Nectarine may be and generally are budded upon the Peach; the Plum and the Peach are budded upon each other; and the Pear and Apple may be worked upon the wild Crab and Hawthorn. The Pear is put on to the Quince to produce dwarf trees. To render the transfer or budding successful, three things are requisite,

1. The bud must be in proper condition; it should be matured, that is of full growth, and yet not so hard and firm as to cause injury in separating it from its parent.

2. The stock must be in condition to receive and nourish it. It must peel freely, as this is necessary for the insertion of the bud, and indicates the presence of what is termed the Cambium; which is the soft, partially formed woody matter underlying the bark, and which ripens into indurated wood.

3. The operation must be skillfully performed. As the Cambium is the source of nourishment to the bud, and the bond of union between it and the stock, great care must be used to avoid injury specially to it, and also to the bark. Both stock and graft should be in a thrifty growing state, and for the Citrus tribe, the earlier in the Spring the better, always provided the essential conditions are complied with. A cloudy day is desirable, but showery and intensely warm weather are unfavorable.

In the South of France, Orange growers make the transverse slit at the bottom instead of the top of the perpendicular cut. By this method it is said the bud rarely fails to "*take*," because, it is alleged, it receives abundance of the descending sap, which it cannot receive when it is under the cross cut.

Since the bud is to be nourished at first by the leaves above it on the stock, the best place to insert it is close beneath some leaf in activity, it is not therefore the most open and smooth part of the stock which is to be selected, as commonly advised.

For the same reason it might appear injudicious to shorten the branches into which the bud is inserted, but if the shoot is not topped, the rising sap will be attracted to the youngest leaves and expened in their increase, while on the other hand, if the shoot *is* topped the sap will be forced laterally into the buds already forming on its sides, and the new bud will participate in this advantage. The better plan therefore would be to cut away only a part of the shoot into which a bud is introduced, until it gets under full headway of growth. When however the budding is deferred too late in the season, no cutting or heading in should be allowed before Spring, as the object should be to encourage a dormant, quiescent state for fear of injurious cold.

A portion of the leaf, if small, or of the foot-stalk, if large, should be left.

There is another mode of budding of ancient date but now obsolete. It is called flute-budding, and consists of peeling off a ring of bark from the stock just below a terminal bud, replacing it by a similar ring with a bud or two upon it taken from a scion, and then binding down. This is performed only in the Spring. It is said to be quite suceessful.

SQUARE SHIELD BUDDING is another mode and is thus described by D'Albret: "From a strong tree remove a square patch; raise from a strong branch another piece of the same shape, but larger and furnished with an eye; fit this piece into the place of the first, and cover it with a piece of paper pierced with a hole for the eye, securing the whole by a ligature. This, is to be employed with trees of very thick bark and large eyes such as Walnut and Mulberry." And doubtless Pecans and other nuts.

European gardeners are particular to remove every particle of wood from the bud, resorting to the use of a silk thread or fine wire to run under the bark, where difficulty is experienced in slipping it off with the thumb nail as commonly practiced. In our country, repeated experiments have led to the conclusion that the wood is not only not hurtful, but is of positive advantage in several respects.

GRAFTING.

Grafting, like Budding, is designed to form a union between plants and trees classed under the same natural order. It does not aim to effect this union by applying the inner surface of the bark of the scion to the outer surface of the wood of the stock, as in Budding, but it is done by bringing the wood of the two in contact, and joining their bark at the edges.

"As a general rule, Grafting is most successful when the scions are quite dormant, but the forces of vegetation in the stock are active. Fruit tree scions may be cut at any time after the fall of the leaf before the buds begin to swell, and kept in damp sand or sawdust.

Before beginning operations provide wax for spreading over the bandages (a paint brush is best for doing this) to keep out the weather. Several formulas are given for preparing grafting wax. The following is from an English horticultural journal:

"Take twenty-seven ounces of common rosin, and when reduced by a slow heat to the consistency of a syrup, add ten ounces of alcohol. Shake thoroughly and pour the mixture into a well stopped vial. When the graft is inserted and tied in its place with a strand of matting, cover the surface of the whole with this mixture which is not affected by heat, cold or wet"

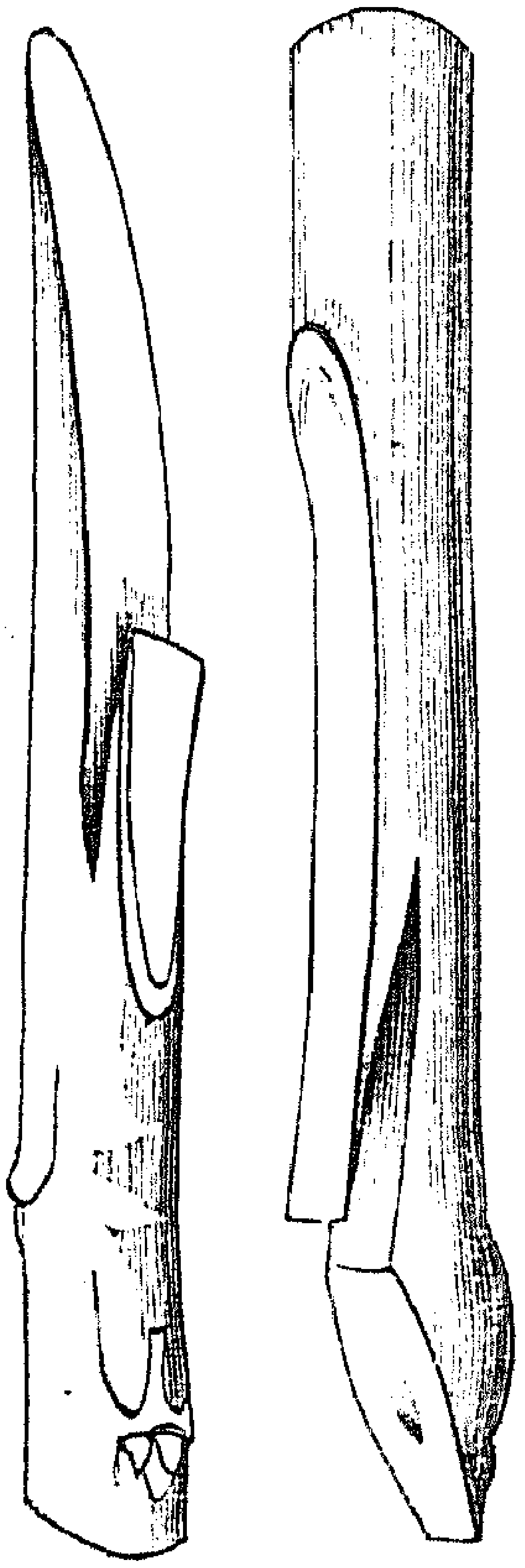
Lindley gives two recipes.

One is simply a mixture of equal parts of tallow and beeswax, laid on *while warm*, with a paint brush.

The other is much better.

"Take four parts by weight of pitch, four of rosin, two of beeswax, one of hog's lard, and one of turpentine, melted and well mixed. When this or some similar composition is spread on brown paper, it forms grafting paper as it is sometimes termed, which being cut into slips can be easily applied."

Some operators use a mixture of fresh cow manure and clay, bringing it by thoroughly mixing with water to about the consistency of soft mortar.

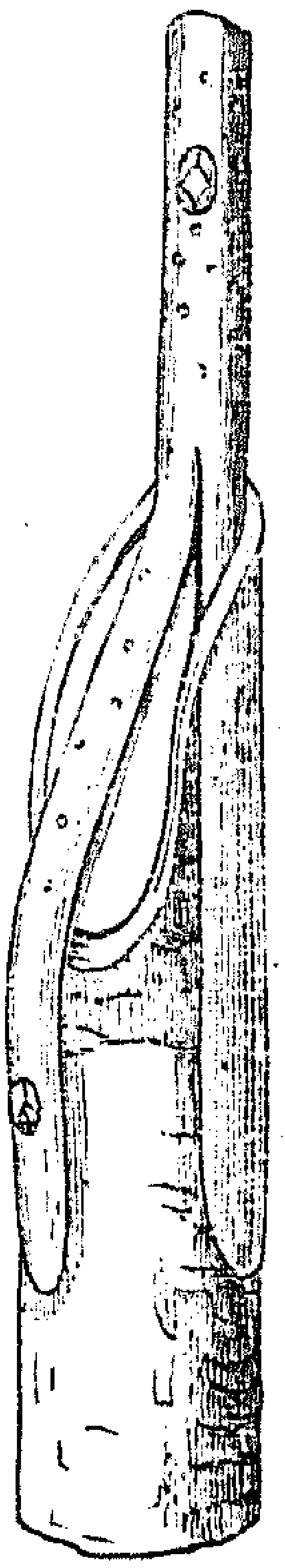


I make a wax somewhat similar to that produced from Lindley's second recipe. Indeed the only difference is I do not use pitch.

There are very many methods of Grafting, each with its special advocate. And where there is such a field for operating as our State presents, we should be prepared to adopt the one best suited to the particular case in hand.

WHIP, or TONGUE GRAFTING is perhaps the most common kind, and is performed "by sloping one side of the stock—which should be about the same size as the scion—with the knife, to a very acute angle. A scion, having two or more buds, is cut with a slope to correspond with that upon the stock; then upon each slope or cut surface is cut a tongue; the scion and stock are locked together by means of these tongues in a manner that will be understood by an examination of the engraving. The barks of both being made to correspond, a piece of waxed cloth or waxed twine is wound round them to hold them in place. After the graft pushes its buds, the binding should be loosened and finally removed when the adhesion is completed. This method is used in root grafting, and may be practised also with flowering shrubs."

Although more tedious than the preceding, SADDLE GRAFTING is said to be far better. It is thus described by Lindley: "Pare the stock obliquely on both sides, till it becomes an inverted wedge, then slit the scion up the center, and pare its sides down until they fit the sides of the stock. In this method, the greatest possible quantity of cellular surface is brought into contact, and the parts are mutually so adjusted that the ascending sap is freely received from the stock by the scion, while at the same time the descending sap can flow freely from the scion into the stock."

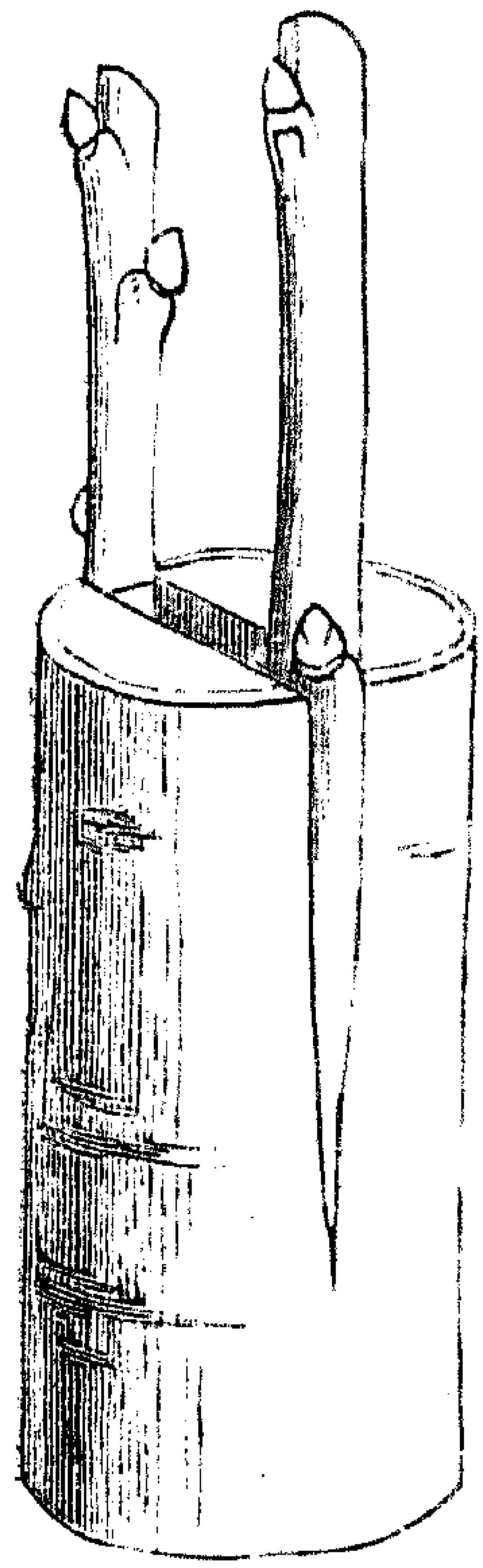


To execute SADDLE GRAFTING properly the scion and stock should be of the same size, and where that cannot be, a second method where the scion may be much smaller than the stock is described by Knight. It is never attempted until the usual season of grafting is past, and the bark is readily detached from the alburnum.

Cut the head of the stock off by a single stroke of the knife, obliquely, so that the incision commences about the width of the diameter below the point where the medulla appears in the section, and ends as much above it on the opposite side. The scion, which should not exceed in diameter half that of the stock, is then to be divided longitudinally about two inches upward from its lower end, into two unequal divisions, by passing the knife upwards just in contact with one side of the medulla The stronger division of the scion is then to be pared thin at its lower extremity, and introduced between the bark and wood of the stock; and the more slender division is fitted to the stock upon the opposite side. The scion consequently stands astride the stock to which it attaches itself firmly upon each side, and which it covers completely in a single season.

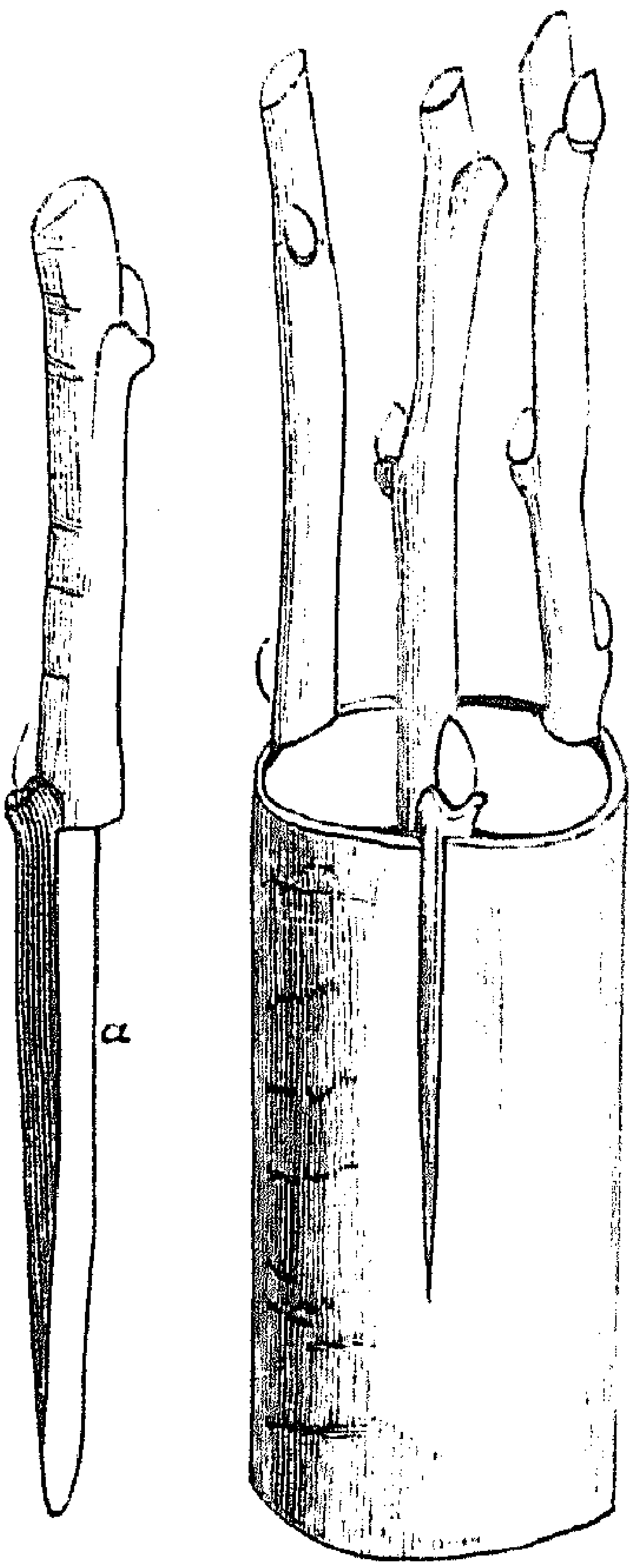
What is called Herbaceous Grafting depends entirely upon the same principles as common Grafting. In order to secure success in Herbaceous Grafting, the scion and stock, being pared so as to fit together accurately, are firmly bound to each other, without being crushed; parts in full vegetation and abounding in sap are always chosen for the operation, such as the upper parts of annual shoots, near the terminal bud; perspiration is diminished by the removal of some of the leaves of both stock and scion, and by shading, and by degrees as the union becomes secured, buds and leaves are removed from the stock, in order that all the sap possible may be impelled into the scion. This method, if well managed, succeeds completely in about thirty days, and is useful as a method of multiplying lactescent, resinous, and hard wooded trees, which refuse to obey more common methods."

CLEFT GRAFTING is the most common, and is generally a very successful method of propagation, whether applied to trunk or branch. "The stock is cut off horizontally with a saw, and pared smooth with a knife; then with the grafting knife and a mallet make a cleft or split some two inches long. The scion is prepared by sloping its lower end in the form of a wedge about an inch and a half long. The cleft being kept open with a wedge, the scion is carefully pushed down to the place fitting its inner bark on one side, so that the inner edges of the bark of stock and scion may co-incide (see cut). The wedge is then withdrawn, and the scions are retained in place by the springing together of the cleft." The operation is completed by covering the graft with wax previously prepared. The above description is intended—except in root grafting—for cases where the difference in size between the stock and scion is considerable, and where two scions are used in the same cleft. If but one scion is to be inserted, the stock is sloped on one side to a thickness nearly equal to the scion.



When the stock and scion are of equal size, "cut the scion wedge-shaped at the base, then split down the middle of the stock, and thin the two parts so that the wedge-shape part of the scion may coincide in every point. (See cut.)

Another mode of CLEFT GRAFTING is in the side of shoots of the same size as the scion, and is thus described: "Whatever may be the nature of the scion, its base should be cut in as lengthened a wedge-shape as circumstances will permit. The place intended for it should be previously fixed upon, and always in the fork of a small ramification of the young stem, or in the axil of one of its leaves, or of an eye. The stem should be cut back a little above the place intended for the insertion of the scion, always taking care that the stump has one or two eyes left, or some small branches, leaves, etc. Make in the stock a cut somewhat slanting downwards, till it reaches the pith, dividing it into two nearly equal parts. The cleft should be made by a single cut, and as quickly as possible, so that the blade of the knife may not have time to deposit iron rust, which is always injurious to vegetation. The place being thus prepared, the scion is inserted, and must be maintained in its position, and otherwise attended according to the practice in other cases."



Crown Grafting "Is by many preferred to Cleft Grafting, as there is no split in the stock, which often leads to decay. It is practiced upon large trees, of which the wood is too hard and stubborn to be cleft, or upon small stocks. Several scions are pared away on one side of the lower end for about two inches, so as to make that side flat, and leaving a shoulder forming a right angle with it. The head of the stock being sawn off horizontally, and the cut portion smoothed, the bark is gently raised from the wood and thin wedges inserted. The scions are now pushed under the bark, their shoulders resting on the crown of the stock; the wedges being withdrawn, the whole is covered with wax or wax-cloth. After the grafts have grown and made long tender shoots, which they will be apt to do with much rapidity and vigor, they should be secured to long stakes planted near the stock, and rising above it to prevent the wind from breaking off the newly-formed top."

There is another mode of grafting called PLUG GRAFTING. Thorin affirms that "this was used by the Romans in grafting their olives and vines, and is mentioned by geoponical writers. The operation, which is performed in the spring, is as follows: A shoot of the previous year is taken, and shaved into a longish cylindrical form, immediately below the lower eye; a hole two or three inches deep, and as large as the scion is then bored in the side of the stock; the scion is placed in the hole, and driven in until it fits exactly, leaving no space between itself and the stock."

The chief advantage of plug grafting is its easy application. It requires no ligature, and is quickly inserted.

INARCHING.

INARCHING is distinguished by the circumstance that both the individuals intended to be united live on their own roots, and mutually cooperate in forming a union. Two stocks of two distinct plants are brought close together, and the prepared surfaces are matched and tongued as in whip grafting. The two plants to be Inarched must be brought near to one another, which is usually accomplished by having one of them in a pot. In some cases, the same object is effected by placing the lower end of the branch to be Inarched in a bottle which is kept supplied with water. Inarching takes the place of Grafting altogether in India, and is thus described: "Procure a seedling of about one or two years old of the plant to be Inarched, or where a seedling is not to be obtained, a rooted cutting of the same age of the plant that is to supply the stock. Put it in a pot, and when it is well *established*, it will be ready to be operated upon. Slice away from one side of the young stem a piece of bark with a thin layer of the wood beneath it, and about two inches long; do the same to a young stem of the plant to be inarched from, and then bring together the two stems that have been thus operated upon, so that the cut parts lie close in contact face to face, and bandage them with cotton twist. In course of time, when the parts have united, head down the stock and dissever the scion from the parent plant by cutting it through below the bandage. The grafted plant must then be put somewhere in a shaded place, and not removed from its pot till it has made a vigorous growth, and stock and scion have become thoroughly incorporated."

LAYERING.

LAYERING is a method of propagating plants by burying the middle of a branch and keeping the end erect, while still attached to and sustained by the parent tree. In the case of cuttings, a portion of the stem or branch containing several buds is severed from the tree, and planted in the ground, observing to leave about two buds out. When the plant is in a healthy, thrifty state, there is nutriment enough accumulated within its stem and leaves to enable it to throw out roots through which it can derive sustenance. But with the layer the parent sustains it during the process of root forming.

In difficult cases of layering it is usual to form a "*tongue*" on the buried stem, by cutting half-way through it in a sloping direction. If this wound is kept open, and it may be prevented from healing by inserting a wedge under the cut part, the roots will form readily.

Layering, as practiced in India, is thus described by Firminger:

"Select a branch of ripened wood of the plant to be Layered, that will bear being bent down to the earth without breaking. Cut the branch half through with a sharp knife, just under one of the leaf buds towards its extremity, and then pass the knife upwards so as to slit the branch about an inch or two up. The slit piece, with the leaf bud at its extremity called the "tongue," should be kept open by inserting a small piece of tile. Remove the earth to the depth of two or three inches from, or place a flower pot over the spot just where the tongue falls on the branch being bent down; then carefully bend the tongued part of the branch into the earth or into the flower pot; secure it in that position by a peg, and cover it over with earth, which should be pressed down and watered. It is recommended to head down the branch when layered, but it is not always done."

Experience has decided that it is much better to form the "tongue" on the upper rather than the lower side of the buried portion of the branch.

"For layering herbaceous plants such as a Carnation, an ingenious plan is given in Le Bon Jardinier. A piece of oiled paper is folded round the stem to be layered, so as to form a funnel, and held together with a couple of pins. Soil is inserted into this, and retained therein by moss thrust into the mouth and kept constantly moist."

It may interest the curious and inquiring to read of and perhaps test by experiment, the production of what in some places in the East is called the "Trifacial Orange," in others, the "Oranger Hermaphrodite." Mr. St. John, in his "Travels in the Valley of the Nile," gives the following account, says Lindley, of this very curious tree in Boghos Bey's garden at Alexandria: "Here I was shown an extraordinary fruit tree, produced by an extremely ingenious process. They take three seeds, the Citron, the Orange and the Lemon, and carefully removing the external coating from both sides of one of them, and from one side of the two others, place the former between the latter, and binding the three together with fine grass, plant them in the earth. From this mixed seed springs a tree, the fruit of which exhibits three distinct species included in one rind, the division being perfectly visible externally, and the flavor of each compartment as different as if it had grown on a separate tree. This curious method of producing a tripartite fruit has been introduced by Boghos Joussouff, from Smyrna, his native city, where it is said to have been practiced from time immemorial."

In confirmation of the above, the Rev. G. C. Renouard reported while Foreign Secretary to the Royal Geographical Society, having seen the fruit of an orange and lemon combined which had grown on a tree similarly produced. Mr. R. described the fruit as having "the size and appearance of a large orange, with two or three patches of lemon neatly stuck on it; the color, almost to the very edges of the different pieces, being distinctly that of the respective fruits; and on removing the rind, which, as in a common orange was all of one piece, the portions beneath the lemon-colored parts, had not only a considerable degree of acidity, while the orange had its proper degree of sweetness, but they were separated from their sweet neighbors by a distinct membrane, which in some degree accounted for their difference in taste."

TALLAHASSEE the Capital of Florida, is attractively situated upon one of the beautiful hills of the high rolling country of the Middle District. It has long been noted for the culture and refinement of its people, the profusion and rare loveliness of its flowers, and its unsurpassed surroundings of woodland beauty. And while not precisely centrally located geographically, there are too many attractions and advantages in favor of the present site, to render a removal of the Capitol at all probable for many years to come.

EXECUTIVE DEPARTMENT.

Governor—Term 4 years	Salary,	$3,500
Governor's Private Secretary	"	500
Lieutenant Governor, 10c mileage and	"	500

Lieutenant Governor is ex-officio President of the Senate.

State Officers.

Secretary of State	Salary,	$2,000
Attorney General	"	2,000
Adjutant General	"	2,000
Superintendent Public Instruction	"	2,000
Comptroller General	"	2,000
Comptroller's Clerk	"	1,200
Treasurer	"	2,000
Treasurer's Clerk	"	1,200
Commissioner of Lands and Immigration	"	2,000

These officers are appointed by the Governor and approved by the Senate.

COMMISSIONERS OF STATE INSTITUTIONS:

The Governor, Secretary of State, Attorney General, Comptroller General, Treasurer, Superintendent of Public Instruction, Adjutant General, and Commissioner of Lands and Immigration.

BOARD OF EDUCATION.

Superintendent of Public Instruction, Secretary of State, and Attorney General.

BOARD OF PARDONS.

The Governor, Justices of the Supreme Court, and Attorney General.

TRUSTEES OF INTERNAL IMPROVEMENT FUND.

The Governor, Comptroller, Treasurer, Attorney General, and Commissioner of Lands and Immigration.

A clerk is allowed at a salary of $1,200.

CONGRESSIONAL DISTRICTS.

There are two Congressional Districts,

THE FIRST of which is composed of the counties of Escambia, Santa Rosa, Walton, Holmes, Washington, Jackson, Calhoun, Franklin, Liberty, Gadsden, Wakulla, Leon, Jefferson, Taylor, Lafayette, Levy, Hernando, Hillsborough, Manatee, Polk, and Monroe.

TO THE SECOND DISTRICT are assigned the counties of Madison, Suwannee, Hamilton, Columbia, Alachua, Bradford, Baker, Nassau, Duval, Clay, St. Johns, Putnam, Sumter, Marion, Volusia, Orange, Brevard and Dade.

GEOGRAPHICAL DIVISIONS OF THE STATE.

WEST FLORIDA consists of Escambia, Santa Rosa, Walton, Holmes, Washington, Jackson and Calhoun counties.

MIDDLE FLORIDA embraces the counties of Gadsden, Liberty, Franklin, Leon, Wakulla, Jefferson, Madison, Taylor, Lafayette, and Hamilton.

EAST FLORIDA includes the counties Suwannee, Columbia, Baker, Nassau, Duval, Bradford, Clay, Lèvy, St. Johns, Putnam, Alachua, and Marion.

SOUTH FLORIDA is composed of the counties Hernando, Sumter, Orange, Volusia, Brevard, Polk, Hillsborough, Manatee, Monroe, and Dade.

NUMBER OF PLANTS TO AN ACRE.

There are 43,560 square feet on an acre of ground, and if that number is divided by the product arising from multiplying the distance of the rows apart, by the distance the plants are set in the row or drill, the quotient will be the number of plants on an acre ; and it is better to remember this than to be bothered with a table.

Example: Suppose it is decided to set Cabbages two feet from each other, in rows three feet apart, and the number necessary to be provided to plant an acre is desired. You divide 43,560 by the product of 3 × 2 which is 6, the quotient is 7,260, the required number to plant an acre 3 × 2.

Parallelograms---Each Containing One Acre.

5 yards wide by 968 yards long equals one acre.
10 yards wide by 484 yards long equals one acre.
20 yards wide by 242 yards long equals one acre.
40 yards wide by 121 yards long equals one acre.
70 yards wide by 69 1-7 yards long equals one acre.
80 yards wide by 60 1-2 yards long equals one acre.
60 feet wide by 726 feet long equals one acre.
110 feet wide by 396 feet long equals one acre.
120 feet wide by 362 11-12 ft. long equals one acre.
220 feet wide by 198 feet long equals one acre.
240 feet wide by 181 1-2 feet long equals one acre.
440 feet wide by 99 feet long equals one acre.

One ounce of seed will produce, of

Asparagus, about five hundred plants.

Cabbage, Cauliflower, Eggplant, Pepper and Tomato, each about three thousand plants.

Celery and Lettuce, each, about four thousand plants.

WHAT MAKES A BUSHEL.

ARTICLES.	POUNDS.
Dried Apples	26
Beans	60
Cow Peas	60
White Beans	60
Castor Beans	46

Buckwheat	52
Stone Coal	80
Shelled Corn	56
Corn in the Ear	70
Corn Meal	50
Onions	56
Dried Peaches, unpeeled	36
Dried Peaches, peeled	40
Irish Potatoes	60
Sweet Potatoes	50
Peas	60
Coarse Salt	50
Fine Salt	55
Turnips	55

HOUSEWIFE'S TABLE.

Wheat Flour, one pound is	one quart.
Indian Meal, one pound two ounces is	one quart.
Butter, when soft, one pound is	one quart.
Brown Sugar, one pound two ounces is	one quart.
Loaf Sugar, one pound is	one quart.

Quantity of Paint to the Square Yard.

New wood requires about one pound of paint to each square yard of surface for three coats.

Powdered chalk added to common glue strengthens it.

FORMULAS FOR CEMENTS.

FOR BROKEN CHINA.

Stir Plaster of Paris into a thick solution of Gum Arabic, till it becomes a viscous paste. Apply it with a brush to the fractured edges, and draw the parts closely together. In three or four days it may be used.

DIAMOND CEMENT FOR CROCKERY.

Glue one pound, white lead (dry) one quarter pound, one quart rain water, and half a pint of alcohol. Put the three first ingredients in a kettle, and set the kettle in a dish of water. Boil until the glue is dissolved, then add the alcohol and boil again until all become thoroughly mixed. Keep in well stopped bottles, and use in the same manner as glue. Should it become too hard, soften by placing the bottle in warm water.

TRANSPARENT CEMENT FOR GLASS.

Dissolve one part by weight of India rubber in sixty-four of chloroform, then add sixteen to twenty-four parts of powdered gum mastic. This should be kept warm for two days and shaken frequently. Apply with camel's hair or other fine brush.

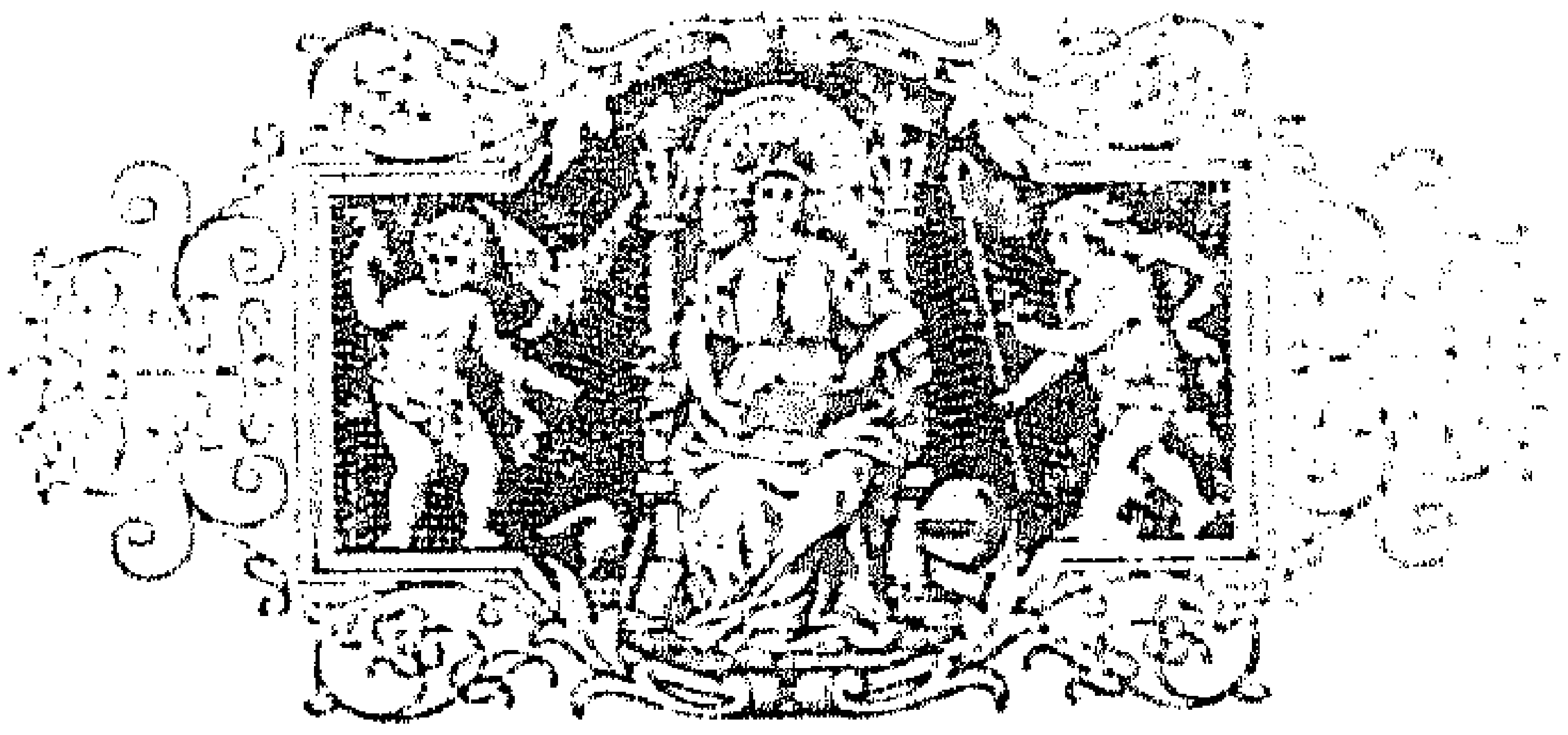
CEMENT FOR GLASS AND IRON UNDER WATER.

Sift together one gill each of litharge, plaster of Paris, dry white sand, and one-third of a gill of rosin, finely powdered. Keep corked tightly and use as needed by mixing into a putty with linseed oil, and adding a little patent dryer. Mix each lot at least fifteen hours before using. After applying let it dry a few hours before letting on water.

WATER-PROOF GLUE.

Render glue soft but not liquid in cold water, then dissolve it by gentle heat in linseed oil. It dries quickly and water will not affect it.

A cement is made of two parts ashes, three of clay, one of sand mixed with oil.



ERRATA.

On page 29, second line from bottom, read *Caula* for *Caulo.*

Page 42, first line, supply *where* after the word *market.*

Page 43, thirteenth line, the sentence should end with the word *any*, and there should be simply a comma in place of the period after the word *bean.*

Page 58, twelfth line near the end, read *are* for *is.*

Page 65, first line, substitute a comma for a period after the word *climate.*

Page 76, sixth line, last word, read *gathering* for *gardening.*

Page 85, second line, read *Caula* for *Caulo.*

Page 88, eighth line from bottom read CANTALOUPE for CANTATOUPE.

Page 92, supply *do not* at the beginning of the seventh line.

Page 97, second line read *rose* for *nose.*

Page 97, tenth line, near the end, supply *on* after the word *come.*

Page 97, second line from bottom of page, read *serve* for *season.*

Page 112, in last line of analysis, read *silica* for *silicic.*

Page 122, third line from bottom of page read *thinning* for *thining.*

Page 123, fourth line read *shallot* for *shalot.*

Page 127, bottom line, read *bedding* for *ledding.*

Page 138, fourth line, read *its* for *their:*

Page 134, nineteenth line, read *chestnuts* for *chesnuts.*

Page 145, seventeenth line, read *contains* for *contain.*
Page 146, second line, read *nutritious* for *nutritions.*
Page 155, fourth line from the bottom, read *imply* for *apply.*
Page 160, fifteenth line, read *civet* for *civit.*
Page 166, eighth line, read *stamens* for *stamen.*
Page 213, seventh line read *practised* for *practiced.*
Page 115, first line, omit the word *himself.*
Page 197, sixth line from bottom, read *consist* for *consists.*
Page 205, last line, read *perseverance* for *perseverence.*
Page 213, last word on page, read *hardiness* for *hardness.*
Page 225, top of page, read *propagation* for *propogation.*
Page 231, third line from bottom, read *albumen* for *alburnum.*